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Is British Industry Inefficient?

I

It is generally agreed that British industry performed well during the war. Four and a half million fighting men¹ were maintained to the last degree with weapons and equipment only rarely surpassed in quality by those of other fighting forces. Behind this achievement lies the story of the flexibility and resource of British workers, technicians and managers. The change-over of the motor-car industry to war purposes almost in a night; the organisation of vast schemes of co-ordinated production by small workshops; the switch-over of firms from every variety of trade to some branch of munitions; the impetus of the dispersal of factories during the heavy bombing of 1940 and 1941; the energy shown in breaking one production bottleneck after another; the swift changes in production to meet new tactics by the enemy—these are the highlights of the swift metamorphosis of British industry, in which, in an agony of haste, innumerable rivulets of individual enterprise were gathered together to create a spate of production. The Spitfire, the Mosquito, the Lancaster, the Mulberry harbour, the 25-pounder gun, the Bailey bridge, British radar equipment are testimony to the quality and endless technical ingenuity of our war products. In brief, British industry in this testing time ran true to its native genius. It produced quality articles. It gave its customers—the fighting forces—what they wanted. It revealed flexibility and response to changing needs and circumstances.

It is, therefore, surprising to find a disposition in some quarters nowadays to regard British industry as a chaotic mass of inefficient firms, normally badly managed, usually too small, invariably under-equipped and frequently indifferent to the

¹ Of the total supply of munitions produced by, or made available to, the British Commonwealth and Empire between September 1939 and June 1944, about seven-tenths was produced in the United Kingdom, about one-tenth came from other Empire Countries; the remaining one-fifth came from the United States.

magnitude of the tasks ahead.¹ It is alleged that our efficiency falls far below that of some other countries, notably the United States and, paradoxically enough, that private enterprise is failing and must therefore be increasingly replaced by State control. Other countries are, naturally enough, not inclined to take a rosier view of our industrial outlook than we are ourselves² and once again the rumour, so frequently in the past disproved in an emergency, runs round the world that the British are on the down grade.

Seventeen years ago one of the most learned and wisest of all students of industrial economics, Professor Allyn Young, an American, said: "I know of no facts which prove or even indicate that British industry, seen against the background of its own problems and possibilities, is less efficiently organized or less ably directed than American industry or the industry of any other country."³ It is the purpose of this article to examine the objective basis of the serious recent criticisms of British industry and, in particular, of the frequently expressed view that the British business man is the villain of the piece.

In so far as this campaign of defamation⁴ is not political

¹ It is perhaps unnecessary to quote cases of this kind of criticism since it has been widespread in economic journals in the past year. But it is surprising to find members of the Right taking part in the hunt. In "Tools for the Next Job," issued by the Tory Reform Committee, we read "much of our equipment is obsolete . . . Britain has not yet become accustomed to a world in which competitors are to be found in most of the countries which once were markets . . . The philosophy of expansion . . . postulates a recognition that almost everything was wrong with our pre-war outlook and its legacy of out-of-date methods and equipment."

² Even so cautious an observer as L. Rasminsky, "Anglo-American Trade Prospects," *Economic Journal*, June-Sept., 1945, speaks of "the shocking state of efficiency of the British cotton industry as compared with American standards."

³ *Economic Journal*, December, 1928.

⁴ Two examples of the lack of balance in the attitude of the critics may be mentioned. Cadbury Bros. recently published a volume, "Industrial Record, 1919-39," which tells the story of their own firm in that period. It is a record of great achievement, courage and success. But it has received only a tiny fraction of the public notice accorded to the various reports which have criticized British industry. In September 1945 Mr. Rostas published an article in the *Economic Journal* dealing with efficiency in the British cotton industry. The article was widely referred to as proof of the comparative inefficiency of that industry. There was, however, one sentence in that article to which I have seen no public reference—"the (British) cotton industry as a whole seems to be no further behind American standards of labour productivity than is British manufacturing industry in general." Yet the cotton industry continues to be quoted as an outstanding example of British inefficiency.

propaganda it seems to be based, largely if not wholly, upon certain studies of comparative productivity in Great Britain and other countries and upon two recent reports on the cotton and coal industries of this country.

II

Mr. Rostas has recently published¹ some extremely interesting figures showing that in 1935, taking manufacturing industry as a whole, output per person employed was roughly twice as great in the United States as in the United Kingdom. For every major industry, output per head was greater, and often much greater, in America than here.

Mr. Rostas put forward his original figures in a cautious and scientific fashion.² But many of those who followed have ignored the reservations and plunged for the conclusions, presumably on the principle that any whip is good enough with which to beat British industry.

It is extremely important to bear in mind certain very elementary facts, rarely mentioned in public discussions of these estimates of comparative productivity.

1. Manufacturing industry does not in any country represent the greatest part of the economy as a whole. Not more than about one-fifth of the occupied population of Great Britain or the United States is to be found in manufacturing industries. The remainder are to be found in agriculture, building, mining, transport, distribution and general services. It is important, therefore, not to draw deductions regarding

¹ *Economic Journal*, April, 1943, and June-September, 1945.

² He does not, however, exercise the same restraint in his later article on the cotton industry (*Economic Journal*, June-September, 1945) where he argues strongly in favour of standardized bulk-production methods. What qualifications he possesses for laying down business policy in an highly intricate industry is not clear. But if, as he admits, our greatest comparative advantage lies in the production of speciality cotton products, it may well be that the most useful development in Lancashire would be increasing concentration on these speciality products. This, however, is a matter for decision by business men who have a detailed knowledge of the trade in cotton goods and are prepared to embark their capital in backing their own ideas. It is also much to be regretted that Mr. Rostas has made no attempt to explain the conflicting figures he has published from time to time. Thus in his first article he shows in Table V. that the output per head in cotton weaving was 30% higher in the United States than in the United Kingdom. In his second article (p. 197) he seems to show that the output per head in cotton weaving was 150% higher in the United States than in Great Britain !

the efficiency of the economy as a whole from what is happening in one-fifth of it. It may well be that American supremacy in manufacturing industry is obtained only at the cost of relative inefficiency in the other four-fifths of their economy. There are grounds for believing this to be the case. For, as Mr. Rostas himself points out, the pre-war real income per head was not significantly greater in the United States than in Great Britain.¹ One possible cause of this is that in non-manufacturing occupations the Americans are less efficient than we. This would mean that American manufacturing industry was obtaining its high output per head only by using a relatively large quantity of non-manufacturing services per unit of manufactured goods produced.

An example : A high output per man can be obtained in the production of pig iron or steel by having a few enormous plants. But the fewer the plants the greater the distance the coal and iron-ore has to be carried. A very high O.P.M. in the iron and steel industry may be evidence of inefficiency in the shape of bad location or waste in transport services. It is no more legitimate to make deductions regarding the efficiency of the economy as a whole from what is happening in its manufacturing industries than it is to deduce the height of a man from the size of his arm.

2. Figures of physical productivity per head, obtained by dividing the output of an industry by the number of persons employed in it, are *not* a measure of the efficiency of the industry. Such figures do not include all the labour associated with the given output. To take the simplest point of all : the labour embodied in the capital equipment necessary for such an output does not come into the calculation. Of two industries that with the higher O.P.M. is not necessarily the more efficient. It would, for example, be quite feasible technically to design a spinning mill in which, apart from a few engineers, there would be no labour at all. The cotton would go into one side of the factory, would be put through successive

¹ Incidentally the pessimists should note that not merely was pre-war real income per head in Great Britain almost as high as in the United States, but the British real income, and output per head in industry, were both rising more rapidly than the American between 1929 and 1937.

processes and carried from one process to another by mechanical devices and would pass out of the other end of the mill as finished yarn. Output per man would be very high but the cost of the yarn would be enormous because of the cost of capital equipment, and any firm which embarked on this experiment would swiftly become insolvent. O.P.M. may always be increased by installing new machinery but it may be the quickest way to the bankruptcy court. It is just as logical, and would prove just as little, to measure the "efficiency" of an industry by an index of output per unit of capital as by output per unit of labour. If this index were used it would probably show that most American industries were less "efficient" than most British industries. The only general test of efficiency is cost and price, indices which are carefully avoided by most of the critics of the British industrial system.

3. It does not follow because one country finds it most economical to carry out production with a great deal of capital equipment, thus giving a high O.P.M., that it is, therefore, economical for another country, operating under different circumstances, to follow suit. It is one of the primary functions of the business man to determine the different proportions in which he must combine capital and labour in order to give the lowest cost. What is good business for American conditions might be madness under British conditions. Differences in general wage levels in different countries will have a vital influence upon the degree to which it becomes economical to use capital. Practically every kind of work done in the world to-day could be carried out wholly by mechanical means if costs could be ignored. It is, therefore, not surprising that the varying economic environments of different countries will produce different O.P.M.'s.¹ which are all perfectly consistent with the maximum attainable efficiency in each country.

¹ It is interesting to find that even in one industry very wide divergences may be found in the O.P.M.'s of different firms of much the same competitive strength. A managing director, for instance, who is something of a genius in machine organization but who is much less skilful in handling labour might well introduce more capital equipment (and have a higher O.P.M.) than another managing director who is not so clever on the mechanical side but knows how to handle large numbers of workers. In the circumstances, both systems may be right.

4. There are a number of other factors determining the O.P.M. of an industry which are completely unrelated to efficiency. The influence of monopoly upon price is one such factor. If in an industry in which output is measured by "added value," a monopoly is formed and prices are increased, wages and profits may well rise. O.P.M. will increase although the only thing that has happened is that the producer is now more effectively squeezing the consumer. Another group of factors is connected with the units used in measuring O.P.M. The unit of labour is "a worker" whether the worker is male or female, young or old. We would normally expect differences in output according to sex or age. A physical unit of output must be a motor-car, a pair of shoes, a ton of steel. But there may be endless variations and differences in the quality of this unit which the statistician cannot measure but which clearly should be brought into the picture if statistics are to have a real meaning.

III

In addition to the general statistical studies there have been two reports, one on the cotton industry and the other on the coal-mining industry, which have led to much public criticism of the efficiency of these two industries.

REPORT OF THE COTTON TEXTILE MISSION TO THE UNITED STATES OF AMERICA.

The Cotton Textile Mission found that, in the production of coarse and medium cotton yarns, British production per man-hour was 30-40% below that in the United States. For fine yarns, the P.M.H. was about the same in the two countries. In weaving the British P.M.H. was 56-67% below that in America, varying with the type of cloth. The Mission concluded that "in the work it is called upon to perform the American industry is more efficient."

But before any significant deductions can be drawn from this Report regarding the relative competitive efficiency of the two industries a number of very important considerations, usually ignored in popular discussion, must be borne in mind.

The first relates to the conditions and terms of reference under which this enquiry was carried out. The Mission was appointed early in 1944 when the man-power shortage had reached its most acute stage in Great Britain. The terms of reference of the Mission make the specialised character of the enquiry clear. Costs of production were not a subject for the Mission and, quite properly, there is not one word regarding costs or prices in the whole Report. The Mission recognised clearly the limited nature of their findings. When speaking of the possibility of installing automatic looms in Lancashire they say "the capital expenditure required would be enormous and the amount of labour required to produce the new equipment would be much greater than was actually available in this country in peace time." When discussing the equipment needed for the proposed technical changes in spinning, the Mission speaks of "the importation of certain ancillary machinery from the United States." It is clear that the Mission, at least in the factual part of its Report, was not concerned with commercial efficiency—the kind of efficiency which decides price and sales and whether we can compete with other countries. It was concerned with devices by which, in war emergency, a shortage of labour in the cotton industry might be overcome even if it meant throwing some part of the cost upon other industries or other countries.

The question of the relative efficiency, when all factors have been taken into account, of the cotton industries in the two countries is still left unanswered. The technical descriptions given by the Mission make clear the differences in the make-up of the total cost of production in the two countries without indicating what is the net effect. Very baldly the story is as follows. In the United States the cotton industry is organised around the automatic loom¹, a large number of

¹ Much popular discussion of efficiency in industry concerns itself with the need for industry to be "up-to-date" and "modern" but the strangest ideas exist on this subject. To avoid misunderstanding it may be worth while to point out that the automatic loom was introduced exactly fifty years ago and that the number of automatics in the British cotton industry has varied from time to time. There seems to have been a fairly heavy mortality among firms using automatics in the inter-war depression.

looms being operated per worker. The automatic loom can only be used in this way if yarn breakages are reduced to a minimum. Otherwise the weaver would not be able to tend a large number of looms, or the machines would often be stopped for the repair of broken yarns. American practice concentrates, therefore, on the making of strong yarns, partly by putting more twist into the yarn, partly by using longer staple cotton, partly by more elaborate yarn preparation before weaving—all of which increase costs. In Great Britain the weaver operates a smaller number of looms, but the skill of the worker is more fully employed in getting more out of the raw material and in keeping the looms running more rapidly. The cost balance sheet can be summarized thus : In the United States the cost of capital per worker (and perhaps per unit of output) and the cost of preparing for the final weaving are higher than in Great Britain. In Great Britain, on the other hand, the cost of labour per unit of output is certainly higher than in the United States provided the American mills can get long runs on standardized products. The Mission did not, and did not set out to, make a final balance of these items. But anyone who wishes to condemn the British cotton industry ought to hold judgment until this final balance has been made.

There are, indeed, *prima facie* reasons for believing that Lancashire costs compare very favourably with American. If the American industry is so much more efficient, how is it that we can sell British cotton cloth, on a large scale, in the United States, despite a substantial tariff ? Before the war there was no evidence that the United States was making important headway in cotton exports at our expense. Both countries were going under to other countries, such as Japan and India, which certainly do not follow the American technique.

The first important point to keep in mind, therefore, in reading the Report of the Mission is that they were not asked to, and in fact they did not deal with, the vital factors—cost and price—in our post-war competitive efficiency.

Despite its limited terms of reference, however, the Mission, in some sections of its report, finds itself drawn into

a discussion of some features of the British cotton industry which affect its long period efficiency and particularly of the internal structure of the industry. But their comments on this point are extremely puzzling and certainly raise more questions than they answer. They point out that the spinning units in America are normally in a position to concentrate upon a very limited number of types of yarn. "It is not uncommon to find but one count of warp and one count of weft produced in a mill." They seem to feel that continuous running of this kind is bound up with another striking feature of the American cotton industry—the prevalence of vertical integration under which many firms spin virtually all the yarn they need and consume on their looms all the yarn they produce. But the Mission makes no comment on three very obvious results of vertical integration. First, it reduces the size of the spinning unit : the average spinning mill in the United States is smaller than in Great Britain. Second, even in a weaving unit producing a highly standardized cloth several kinds of yarn might normally be needed. How then can the spinning sections of the American integrated firms gain the full economy of mass production ? Third, when the character of the cloth being woven does finally change then the whole balance of the integrated unit will be destroyed. It is indeed difficult to isolate the grounds upon which the Mission accords its approval of vertical integration and implies that we might well follow the American example. They say at one point that the American vertical organization enables "spinning practice to be standardized to weaving requirements." But has it ever been the case that the specialized spinners of Lancashire have failed to give weavers the yarn they require ? In another place the Report points out that the lack of standardization of product in British factories "often results in the plant becoming unbalanced, necessitating a stoppage of part of the equipment and the labour force." But surely vertical integration introduces many more chances of lack of balance in a factory by making it now necessary to maintain a balance between the output of the spinning and weaving units.

There are many other facts which might well lead a wary observer to doubt whether, because the structure of the American industry is different, it is therefore more efficient.

(a) The advantages of integration in industry generally are normally very limited. Integrated firms are more difficult to administer, more susceptible to shocks from the market, less able to seize fully on the advantages of large-scale production,¹ than specialized firms.

(b) In the middle of the nineteenth century most of the cotton firms in Lancashire were "mixed firms,"² but they have gradually been disappearing until now they are relatively rare. Results based upon experience and the test of the market of this kind cannot be lightly set on one side.

(c) In recent years the "mixed firms" in Lancashire have rarely found it possible to be self-sufficient as between their spinning and weaving units.¹

(d) The different conditions in the United States and Great Britain may well explain and justify differences in internal organization. The cotton industry is not so intensely localized in America as it is in this country. And the fluctuations of the export trade may well mean that we must have a more flexible structure than is called for elsewhere. Moreover a large part of the American cotton industry—that in the Southern States—is relatively new. Vertical integration may well be a form of industrial organization associated with relative immaturity.

A recent authoritative enquiry into integration in the American textile industries³ has fairly summed up the position as follows: "One observation stands out above all others—the integrated company which attempts to achieve exact balance between its yarn and fabric departments usually finds the departments thrown out of balance sooner or later as

¹ See "Factors in Industrial Integration," *Quarterly Journal of Economics*, August, 1930.

² See "The Localization of the Cotton Industry," *Economic History*, January, 1930.

³ "Vertical Integration in the Textile Industries," by Davis, Taylor Balderston and Bezanson.

products, markets, processes or raw materials change. Change is the all-pervading characteristic of textile production and distribution to-day and change is the foe of balance. It would seem, therefore, that integrated companies to-day might probably accept unbalanced operations as the normal way in which they have to do business and, wherever possible, adjust their organizations accordingly." It would be a pity if, through faulty diagnosis of their ills, the Lancashire cotton industry set out to copy the American industrial pattern just at the time when the Americans were discarding it.

Neither does the Mission seem to have given to the question of the relation between the size of a factory and its efficiency the thorough examination it merits. They indicate (p. 32) that the small average size of the Lancashire weaving shed "is well below that required for optimum efficiency in a highly mechanized and fully balanced unit" and they show that the corresponding American unit is about twice as large. It is important, however, not to be befogged by the use of average figures. There are many weaving units in Lancashire much larger than the average, which would certainly not have been deterred by their size from copying American methods, if these had been commercially economical. And it should not be overlooked that the average size of cotton mill in the United States has been falling in the last twenty years, that the smaller firms in the cotton-growing States of America have been much more prosperous than the larger firms in New England and that the average spinning unit in the United States is much smaller than in Great Britain. There is, in fact, no simple relation between size and efficiency.

Nothing that has been said here, is intended, of course, to detract from the high quality and value of the Report for the purpose for which it was prepared—the urgent treatment of a desperately urgent problem of man-power in war-time. And it is much to be hoped that this enquiry will provide a precedent for other industries to follow in keeping abreast of the technical methods employed abroad. But it cannot be too strongly stressed that the Report of the Mission is only indirectly

relevant to the broad economic problem of how best the British cotton industry can meet its post-war problems.¹

THE REPORT OF THE TECHNICAL ADVISORY COMMITTEE IN
COAL MINING.

The Reid Committee Report is a model of its kind for objectivity and courage. It points out that whilst the output per man shift (O.M.S.) in British coal mines compared favourably with that in most other European countries as late as 1925, after that year the British O.M.S. failed to increase with progress in other countries. So that immediately before the war British output per head was well below that of Poland, Holland and the Ruhr.² Against this statistical background the Reid Report elaborates the need for extensive re-organisation of the British coal-mining fields in order to increase technical efficiency.

Now the Reid Committee was a technical committee. They say that "we should like to make it clear that we have undertaken this task in our capacity as mining engineers and that all our conclusions and recommendations have been formulated from our professional viewpoint." But the efficiency of an industry is an economic concept of which technical matters are only one aspect. The economist, is, therefore, entitled to ask the following questions before reaching conclusions as to economic policy in regard to coal-mining.

¹ There are other incidental comments in the Report well worth consideration. The Mission speaks highly of the conditions under which the operatives live and work, particularly in the South where the mill may be the only industrial organization in the village (p. 38). This attitude is of course directly opposed to the contemporary insistence in Great Britain upon the 'balanced distribution of industry.' The Mission refers (p. 23) to the high average age of the British cotton machinery. But it must be remembered that such machinery, if kept in a good state of maintenance, has a long life. Thus in the United States over one-half of the spindles in place in 1935 had been installed prior to 1909. In 1938 about half the looms in place were over 20 years old.

² It is worthy of remark that O.M.S. was, in 1938, still higher in Great Britain than in either France or Belgium. The Reid Committee does not comment on this but it would be interesting to determine the causes of the failure of France and Belgium to share in the general increase in productivity.

(a) Would the cost of the re-equipment recommended by the Reid Committee justify itself by decreasing the cost of producing coal? The Reid Committee refused to commit itself to a figure for the cost of reconstruction. "We have carefully considered whether we should be justified in forming an estimate of the whole cost of reconstructing the industry . . . There are serious objections to such a course." But if the cost of reconstruction is unknown, how can the Report constitute irrefutable proof of the case for reconstruction?

The cost of reconstruction might well be in the neighbourhood of £M.150. When it is borne in mind that the present equipment of the coal-mines has a value around £M.200¹, the new investment might be risky unless some preparatory examination were made of the savings in cost which would accrue.

(b) When the British coal-mining industry is described as inefficient what is really meant? Here a very striking fact becomes evident which has not been given the publicity it merits. There is an enormous range of technical efficiency (as measured by O.M.S.) between the good and the bad mines. In December 1944 the average output per man-shift overall was 20 cwts. But 9% of the total output was produced in mines with an O.M.S. of less than 15 cwts. On the other hand 23% of the total coal was produced in mines with an O.M.S. of over 25 cwts., and 7% in mines with an O.M.S. of over 30 cwts. No better illustration could be given of the danger of generalizing about "the industry." The inefficiency of the British coal-mining industry largely takes the form of a long weak tail. If the total output of the British mines were decreased by about one-fifth, by cutting out the least efficient mines, then the output per wage-earner employed would rise by over 12%.

Why have these weak units not been eliminated? Because the State has taken special pains to keep them in existence. The Coal Mines Act of 1930 enabled the industry to establish statutory minimum prices and fix output quotas which tended

¹ Stamp (British Incomes and Property) gave the capital value of coal and other mines in 1914 as £179 millions.

to perpetuate the ground plan of the industry. The competition of fuel oil was deadened by taxation. And during the war, for understandable reasons, the strong units have been milked to preserve the weak as the Coal Charges Accounts show. The comments of the Reid Committee on the coal-mining industry in the United States are highly relevant to this point. "Intense competition, combined with excess capacity, has stimulated producers in the struggle for survival with the result that production technique has been under constant review and new types of machinery have been continually developed. Technical progress has also been stimulated by competition from other fuels and by the increased cost of labour resulting from wage increases. Whilst some attempt to mitigate competition by price regulation was made in the United States, under the Guffey Act, success was only partial. Moreover, in practice, price control without production control, permitted competition to continue and made the regulation of prices relatively ineffective."

Can it be doubted that, if competition had been similarly allowed to work itself out in Great Britain, something of the same advantages would have been attained here and that the British coal-mining industry would now be in a stronger competitive position? And if an industry is being slowly paralysed by State fostered restriction can this be regarded as inefficiency of a kind that it can be cured by kicking around the business man?

(c) Why was the British coal-mining industry apparently not prepared to invest capital between the wars? In the United States, as appears from the quotation above, bad times stimulated effort. It may be that the British coalmine owners are naturally more conservative than other men, though if this is true it would be interesting to have the evidence of it. It may also be that the State-created restrictions of the Coalmines Act of 1930 discouraged enterprise. But the crucial reason surely was that since profits were not being made on a large scale the capital was not there to invest. Here one cannot ignore the striking fact that before the war, although the O.M.S. was lower in Great Britain than in most

other European countries the wages paid per shift were the highest in Europe.¹ The British coal-mine owner could not use foreign capital for reconstruction purposes as the Germans did. He could not recoup himself for a low price in the export trade by raising prices at home, as did the Poles. He was tied to a wage level which was inconsistent with the economic conditions under which he was operating. Little wonder that capital for technical re-equipment was often lacking. Before the war, that is to say, the distribution of the proceeds of the industry was inefficient since it throttled technical improvements. But that is hardly the fault of the coal-mine owner.

All these problems are now to be dealt with by the State under the scheme for nationalization. But no-one really believes that, the coal-mine owner once removed, everything will be plain sailing. How much capital investment in coal-mining is economically justifiable? Can efficiency be maintained in an industry which has power to fix minimum prices, which is protected against the competition of rival fuels, and in which the efficient units are milked to support the inefficient? How long can an industry survive which pays wages which render its prices non-competitive with those of the foreigner? The fact that these problems remain indicates that the inefficiency of the British coal-mining industry was much more the product of State intervention in its many forms than the consequence of free enterprise.

IV

The case against British industry as a whole is very thin. The case against British business men as a class is even less circumstantial. The test of the efficiency of a system is the size and rate of increase of the real income per head and on both these scores we made a very good showing before the war. It is true that before the war we wasted resources unnecessarily in unemployment—that was the fault of the economists (who have now retrieved their reputation by agreeing on the major lines of employment policy) and of the State

¹ This striking disparity will presumably be intensified by what has happened during the war. Between 1939 and 1944 wages per ton of coal supply in Great Britain rose by 117%. Proceeds rose only by 86%.

which followed financial policies disastrous to employment. It is true that some industries lagged behind in dealing with their problems but in the main they were industries which were seduced by Government, Labour and Conservative alike, to meet their difficulties by restriction of output and the maintenance of the inefficient. But to suggest, in the light of the steadily rising standard of living, that an internal process of decay had set in is a travesty of the facts.

It is, of course, axiomatic that the more efficient we can become in the next decade the better for all of us individually and for the influence which Great Britain must play in world affairs. But to argue that, in the past, the British business man has egregiously failed or that our efficiency in the future will depend uniquely upon the power of the business man to raise himself to new starry heights of intelligence and energy is unscientific, unfair and dangerous. Unscientific because the power of the economy depends upon us all, wage earners, civil servants, Ministers of State, statisticians, trade union officials, economic journalists and business men alike. Unfair because blame is being wrongly apportioned. Above all dangerous because the business man, discouraged or soured by irresponsible criticism, may well lose confidence in himself and interest in his responsibilities and because his critics, swept away by their own sense of superiority, are only too inclined to provide risky and spectacular solutions for our problems. Those who favour a flashy diagnosis are more than likely to produce a hasty prescription. In a subsequent article some of these prescriptions will be examined.

J. JEWKES.

Mobilisation of Man-Power in Great Britain for the Second Great War¹

INTRODUCTION.

The Ministry of Labour and National Service has had the responsibility during the war of calling up men and women for the Armed Forces and the Women's Auxiliary Services on the one hand, and of supplying man-power for Civil Defence and for the munitions and other vital industries and services on the other. The fundamental aim of the Government's man-power policy has been to mobilise the nation's resources in such a way and at such a speed that our naval, military and air forces and our war production reached their highest point at the time when maximum impact was required. This has involved a continuous survey in detail of the country's man-power resources and of the demands made upon them, for the purpose of enabling the War Cabinet to decide from time to time the extent to which and the means by which those demands could and should be met.

I propose in this paper to give first a statement of the legislative measures that gave authority for what has been done, together with an account of the administrative steps taken to carry these measures into effect and then to give a statistical statement illustrating the progress of the mobilisation of the man-power of the country.

¹ This paper was read before the Manchester Statistical Society on March 14th, 1945.

SECTION I

LEGISLATIVE AND ADMINISTRATIVE MEASURES.

Shortly before the war, on 26th May, 1939, the Military Training Act came into operation. This Act provided for the registration, medical examination, and calling up for training of men aged 20. Only one registration of an age class under that Act took place. The Act was superseded upon the outbreak of war when on 3rd September, 1939, the National Service (Armed Forces) Act, the first war-time measure affecting man-power, came into operation. This Act made all male British subjects in Great Britain aged 18 to 40 inclusive liable for military service. The National Service (No. 2) Act which was passed in December, 1941, raised the call-up age up to and including 50. Another Act, the National Service Act of 1942 which received the Royal Assent on 17th December, 1942, reduced to 17 years 8 months the age at which men may be called upon to register, although leaving the liability to be called up for service at the age of 18.

The No. 2 Act of December, 1941, was an historic Act in that it made women liable to be called up for service in the Women's Auxiliary Services and the Civil Defence Forces.

Provision for recruitment to the Civil Defence Service was made by the National Service Act of 1941 which received the Royal Assent on 10th April, 1941. It amended the Act of 1939 by making men liable to be called up to a Civil Defence force.

On the civilian side the most important piece of legislation was the Emergency Powers (Defence) Act of 1939. A fundamental extension of the powers conferred by the Act was made during the crisis of May, 1940, when under an amending Act power was taken by Order in Council to make Defence Regulations requiring persons to place themselves, their services and their property at the disposal of His Majesty so far as might appear to be necessary or expedient for securing the public safety, the defence of the realm, the maintenance of public order or the efficient prosecution of the war, or for maintaining supplies or services essential to the life of the community.

Regulations made under the Act, at the same time, vested in the Minister of Labour and National Service the control and use of all labour by giving him power to direct any person in Great Britain to perform such services as may be specified by directions issued by or on behalf of the Minister, to require persons of any class or description to register particulars about themselves and power to enter and inspect premises and to require employers to keep and produce such books, documents and records as might be necessary. The regulation further provided that any directions of the Minister might, in accordance with his instructions, be given on his behalf by duly authorised persons called "National Service Officers." The Minister was also given power to make provision by Order for regulating the engagement of workers by employers and the duration of their employment. These Regulations and Orders with their very wide powers provide the basis on which the main man-power plan for industry has been worked out.

Another of the Defence (General) Regulations of 1939 gave power to the Minister to direct men and women to enrol in the Civil Defence Service, Royal Observer Corps and Special Constabulary, either whole-time or part-time.

Under the Defence (Home Guard) Regulations, 1940 and 1942, the Minister was given power to direct men to join the Home Guard.

It will be seen that the Minister's powers were extremely wide and covered for man-power purposes practically every aspect of the country's activities. So far as industry is concerned they have provided the sanction behind the large scale movement of labour into the vital war industries and the wide redistribution of labour that has taken place within those industries but, owing to the co-operation and willingness of the citizens of this country to serve the nation in its hour of need it has only been necessary to invoke the powers to a limited extent. And at all times much care has been taken to use these widespread powers with discretion.

The Minister has endeavoured to carry both sides of industry with him in the measures he has had to take. A National Joint Advisory Council consisting of representatives of the Trades Union Congress General Council and the British Employers' Confederation was set up at the outbreak of war to advise the Minister on matters of common interest to employers and workers. When the wide powers of direction and control were taken in May, 1940, the Council appointed a Joint Consultative Committee to advise the Minister on the further steps to be taken and this Committee has been consulted on, and kept fully informed of, all proposed developments in the mobilisation of our man-power. This has been a potent factor in enabling the mobilisation of man-power to be carried out smoothly and with a minimum of friction.

Under the Defence Regulations various Orders have been made. These Orders have had three main objects :—

- (1) The *registration of men and women* in order to secure a record of the individuals in each age class with a view to utilising their services for the national effort either in the Armed Forces, Civil Defence or Industry :
- (2) The *control of labour* so as to make the most effective use of man-power and to ensure the most efficient working of the mechanism for its distribution ; and
- (3) The *securing of information* as to the existing distribution of the country's man-power.

REGISTRATIONS OF MEN AND WOMEN.

These fall into two classes :

- (1) Registration with a view to call-up to the Forces ; and
- (2) Registration for the purpose of industrial employment.

In addition to the steps taken by way of registration under the National Service Acts and the Registration for Employment Order, administrative measures to preserve the balance between the requirements of the Forces and the needs of industry have had to be taken.

(1) *Registration for call-up.* As already stated an obligation to register was imposed on men of military age by the Military Training Act of 1939 and the National Service Acts of 1939 to 1942.

The Order of registration of the various age classes was youngest first. Subject to this rule the registration of particular age classes has been arranged so as to provide a sufficient flow of men for the Fighting Services. Men have been allowed to express a preference for the Navy or Air Force if they wish but there has been no guarantee that they would be called up to the Service of their choice. After registration, those men not reserved for industry have been called for medical examination by a Medical Board consisting of four doctors who have been required to grade them in four categories, I, II, III and IV. Those passed as medically fit for service in the Forces formed the reservoir from which men have been called up for training in the numbers required to meet the needs of the Fighting Services. In allocating men to the various branches of the Forces account has been taken of age, physical and mental standard and civilian occupation and experience. Men with certain kinds of skill have been earmarked for one or other of the many skilled trades in the Services. Provision has been made for conscientious objection and for postponement of call-up on account of exceptional hardship.

As from September, 1942, young men under 25 years of age who became available for posting to the Forces have been given the option of taking up underground employment in coal or other mining. In July, 1943, this option was extended to fit men of all ages subject to certain exceptions. In December 1943, a scheme of selection by ballot for coal-mining was introduced applicable to men who had been placed in medical grades I or II. Exclusion from the ballot is limited to three classes : (1) men accepted for flying duties in the R.A.F. and Fleet Air Arm, (2) men accepted as artificers in submarines, (3) men in a short list of highly skilled occupations who are called up only for certain service trades and are not even accepted as volunteers for coal-mining.

In 1944, the machinery of the National Service Acts was used for recruiting to the Merchant Navy considerable numbers of young men who had opted for service at sea.

(2) *Registrations for Industrial needs.* These registrations have been made under the authority of the Registration for Employment Order, 1941. Men born in the years 1892 to mid-1900 and women born in the years 1893 to 1926 have been registered.

In most cases registration has been followed by personal interview by specially trained and selected officers. Those women who, as the result of registration, have been found to be engaged on vital war work and those with children of their own under 14 living with them have not been called for interview. The rest have been called for interview in the order in which they are expected to be most readily available for employment on war work. Where there has been doubt about the extent to which personal and domestic circumstances would affect allocation to particular employment, the case has been referred for advice to one of the independent Women's Advisory Panels which have been attached to the Employment Exchanges. When, after interview, a person has been considered available for a particular type of work, a certain amount of choice has been allowed. If the person, man or woman, has been unwilling to undertake the selected employment he or she has been directed to the work by a National Service Officer. While there has been no statutory right of appeal against a direction to employment the person has normally been allowed to appeal to an Appeal Board constituted under the Essential Work Orders.

The numbers of additional women available for the war effort has been largely restricted by domestic responsibilities. The numbers with no employment and no household responsibilities have been found to be small, a large proportion of the women being already in employment.

Registration has provided information about individuals that has enabled a vast system of man-power transference to be effected under which men and mobile women in areas

where there has been less stringency of man-power have been transferred to areas where there has been an acute shortage. If in connection with such transference a woman considered that she was not "mobile" and the Employment Exchange officers did not agree, her case has been put to the Women's Panel attached to the Exchange.

The registration of women under the Registration for Employment Order has also been used for calling up to the Women's Auxiliary Services those classes of women to whom the National Service Acts have been applied.

The registration system has been of enormous service in discovering men and women with special skill. For this purpose there have been special registrations of engineers, electricians, shipbuilders, miners, seamen, cotton operatives, nurses and midwives. Those found to be employed in less essential industries have been transferred to the war industries and services where they were urgently needed. The first registration of this kind was made in August, 1940, under the provisions of a special Industrial Registration Order made in 1940. Other registrations have been made under the Registration for Employment Orders.

BALANCING OF REQUIREMENTS OF FORCES AND NEEDS OF INDUSTRY.

Means had to be devised which would adjust the balance between the requirements of the Forces and the needs of industry for munitions and other essential work. The instrument used in the first place for this adjustment in the case of men was the Schedule of Reserved Occupations which fixed an "age of reservation" for each occupation. Persons at or above the age of reservation for their particular occupation were normally reserved for industry, persons below the age of reservation were normally called up for the Forces. This general scheme of block reservation was rendered more flexible by a system of deferment which applied to key men, or other persons below the age of reservation for their occupation, who were engaged on vital war production. In certain of the

more highly skilled occupations men below the age of reservation were only called up to the Forces if they were required for service in their trade capacity.

Owing to the growing needs of the Armed Forces for man-power it became evident by the end of 1941 that a still finer instrument was required. Accordingly the system of block reservation by occupation was gradually replaced during 1942 by a system of individual deferment. This meant the examination of every individual case where a man was reserved for industry through the operation of the Schedule of Reserved Occupations and it introduced the single test of the importance to the war effort of the work upon which the man was engaged. In addition to providing more men for the Forces the new system facilitated the transfer of men with special skill or experience from less essential to more essential work.

Applications for individual deferment of call-up have been dealt with by District Man-Power Boards of which there are 44 throughout the country. Each Board consisted of a Chairman, a Labour Control Officer, a District Technical Officer, a Deferment Officer and a Woman-power Office, and this constitution has ensured that every aspect of man-power requirements should be borne in mind in dealing with each individual case. In considering the withdrawal of a man from a particular employment the Government Department concerned with the work on which he was engaged was consulted. Employers were advised by the District Man-Power Board of any proposed cancellation of deferment in order that they could, if necessary, communicate with the appropriate Government Department.

There has been no Schedule of Reserved Occupations for women but women engaged in certain vital war work or service have been regarded as reserved from call-up.

CONTROL OF LABOUR.

So far as the control of labour is concerned the most important of the Orders may be briefly summarised as follows :

(1) *The Undertakings (Restriction on Engagement) Order of June, 1940.* This Order required that all engagements in certain vital industries should be made through the Employment Exchange machinery of the Ministry of Labour and National Service or through approved Trade Unions and the purpose of the Order was to stop the growing evil of the poaching of skilled labour. The Order also provided that agricultural workers and coal-miners might not be engaged for work outside those industries.

(2) *Essential Work Orders.* The primary object of the Orders was to prevent the unnecessary turnover of labour and thereby to increase production and secure economy in the use of labour. This has been done by scheduling essential undertakings and restricting drastically an employer's freedom to discharge and an employee's freedom to leave his employment. With certain exceptions the permission of a National Service Officer is required but there is a right of appeal from his decision to a Local Appeal Board. This Board consists of representatives of employers and workers with an independent chairman. In addition to placing restrictions on the right to leave or discharge, the Orders require the payment in scheduled establishments of a guaranteed weekly wage in the case of time workers and a guaranteed daily wage in the case of piece workers. The Orders also contain provisions relating to welfare, absenteeism, and persistent lateness.

The general plan has been to bring within the field of the Essential Work Orders those industries in which stabilisation of labour is needed. This has been done after consultation with the two sides of industry and only if satisfactory wage arrangements existed or were introduced in the industry.

The first Order—a General Provisions Order—came into operation on 5th March, 1941, and has been applied to a number of industries employing about 7½ million workers. Following the General Provisions Order, special Orders were applied to particular industries such as building and civil engineering, coal-mining and dock labour in which special conditions exist.

(3) *Employment of Women (Control of Engagement) Order.* The increasing numbers of women going into industry in 1941 made it necessary to ensure that they should be directed to the places where they were most urgently needed. Accordingly in January, 1942, the Employment of Women (Control of Engagement) Order was made, under which all engagements of women 20 to 30 years of age, subject to certain exceptions, were required to be made through the Employment Exchange machinery or an approved Agency. The scope of the original Order was extended from time to time and it now applies to women aged 18 to 40.

(4) *Control of Employment (Notice of Termination of Employment) Order, 1943.* The purpose of this Order was to secure that workers who leave their jobs take up without undue delay fresh work which it is in the national interest for them to do. The Order consequently required that where notice to terminate the employment of any workers covered by the Order is given or received or where the employment is terminated without notice, the employer must give immediate notice in writing of the termination or prospective termination of the employment to Local Offices of the Ministry. The Order applies to all men between 18 and 64 inclusive and to women 18 to 59 inclusive, whether they are doing full-time or part-time work providing it is not less than 20 hours a week. It applies to unpaid as well as to paid workers.

Machinery for Supplying Vital Industrial Needs. Linked with the Orders concerning the control of labour has been the machinery for supplying vital industrial needs. In order to make the most effective use of man-power and in particular meet the needs of vital war work a system of labour preferences was developed. This enabled undertakings to be manned up whose labour requirements could not be satisfied through the normal channels. The identification of such undertakings has been the responsibility of a Committee composed of Headquarter representatives of the Ministry of Labour and National Service, the Ministry of Production, the Supply Departments, the Board of Trade, and any other Department vitally concerned, working under Ministry of Labour and

National Service chairmanship. The decisions of the Committee have been issued in the form of a fortnightly Preference List of undertakings to which all suitable labour should be directed, wherever possible, until their needs were met. The Committee has considered for the highest priority (First Preference) only vacancies on products or services of a particularly urgent character included in a list drawn up by the Ministry of Production in consultation with the Ministry of Labour and National Service. A lower grade of priority (Second Preference) has been awarded by Regional Preference Committees composed, on the model of the Headquarters Committee, of Regional representatives of the Departments named. The Headquarters Committee has normally refused to admit vacancies for First Preference unless Second Preference has been tried without success. The decisions of the various Preference Committees have been communicated to the Employment Exchanges concerned for the necessary action when redistributing man-power made available through the channels of normal supply or through registrations under the Registration for Employment Order or as the result of withdrawal of labour from industries and services which were due to suffer cuts in their labour strengths.

COLLECTION OF INFORMATION.

The mobilisation of man-power has two main aspects. First the direction of individual men and women to the places where they are most needed for the war effort having regard to their qualifications and experience. Secondly, the general redistribution of man-power so that the maximum possible numbers are employed directly on the war effort in the Armed Forces, Women's Auxiliary Services and munitions industries.

The first of these two objectives has been secured through the operation of the measures of control already described. The registration of men of military age under the National Service Acts yielded all the information needed to determine whether a particular man could best serve the war effort by being posted to, or being allowed to volunteer for, the Armed

Forces, or by being retained in industry, with or without transference to fresh work. Once it had been decided that a man should go to the Forces his case was considered by the authorities concerned in order to determine the particular branch of the Service in which his qualifications could be used to the greatest advantage. If it was decided that he should remain in industry the system outlined above ensured that, in due course, and having regard to the demands for labour of various skills, he would be employed on the civilian work best suited to his capacity. The registration of women under the Registration for Employment Order enabled the same processes to be carried out in their case, the most careful consideration being given at every stage to the personal circumstances of each one registered.

It was soon found to be necessary to devise a system for giving direction to the movement of the very large numbers who came under review. This movement had to be planned in relation to the needs of the country taken as a whole. In consequence there was developed in the Ministry of Labour and National Service a series of Man-Power Surveys in which stock was taken of the man-power already serving in the Armed Forces, the Civil Defence Services and each of the main industry groups. Forecasts were made of the new man-power likely to be available during the next 12 months, and the probable losses during the same period. There was thus built up an estimate of the extent to which additional man-power could be made available for the Forces, munitions industries and other vital industries and services taken as a whole. At the same time information was collected from the Government Departments concerned as to the numbers needed to meet their requirements, having regard to the strategical situation and the development of the munitions programmes approved by the War Cabinet. It thus became possible to determine the extent to which those plans could be carried out and to allocate, in advance, to each item of demand, the supply of man-power that it should receive. It then remained for the Ministry of Labour and National Service, in consultation with other Departments concerned, to use the powers

entrusted to it for making the necessary readjustments. These readjustments have necessarily involved very large numbers of men and women each year. Nevertheless it has been found possible to achieve, within very small margins, the man-power allocations previously approved by the War Cabinet.

The statistics that were essential to this vast scheme of redistribution were, in the main, derived from two sources, first the periodical employment returns made by employers under the provisions of Orders such as the Undertakings (Records and Information and Inspection of Premises) Order, and, secondly, the statistics derived from the annual exchange of Unemployment Insurance books in July of each year.

The returns rendered by employers were indispensable and I should like to pay a tribute to the co-operation and the spirit of understanding that we have met with from employers of this country. The returns have in some cases been complicated and have had to be collected at rather frequent intervals. We have been at some pains to explain to employers the purposes for which the returns were needed and there has been an almost complete absence of complaint about them. It is easy to understand why a comparatively small employer, whose labour force changes but little, may wonder what purpose can be served by the reporting of his numbers quarter by quarter to the Minister of Labour. And yet his returns were as essential as any other because they were needed to complete the picture.

The individual returns served two main purposes. First they gave indispensable information to the Regional officers of the Ministry of Labour and National Service and of the Supply Departments. The importance of the returns from this angle will be appreciated when it is remembered that they showed not merely the numbers of men and women at work in each factory at a particular date but also the extent to which the labour force was being employed on various branches of the munitions programme. The returns from certain of the more vital industries also gave forecasts of the increases required by the particular employer in his labour force having regard

to the contracts in hand or those which he expected to receive in the near future. This information was supplemented by an occupational analysis, both of the existing labour force and the increases required, a statement of the principal products manufactured and an indication as to whether the employer had facilities for undertaking further war work. Separate figures were collected as to the numbers employed in the manufacture of machine tools and engineers' small tools. It will be readily appreciated how valuable all this information was to the District Man-Power Boards who were concerned with applications for the deferment of military service put forward by particular employers in respect of their employees and who had to deal with labour demands of the utmost urgency that had to be met in order to carry out some vital munitions production. The returns furnished basic information on which Labour Supply Inspectors and the officers of the Supply Departments handled all their problems and they enabled the Regional and Headquarter offices of the Supply Departments to keep themselves informed of the progress of their programmes of expansion.

Secondly on the statistical side the returns enabled the Department to compile, at reasonable short intervals, detailed figures of the changes in the labour force in each industry and, within the principal manufacturing industries, the changes in the numbers employed on work for each of the Supply Departments, other Government Departments, home market and the export trade. These statistics have formed the basis of periodical reports to the War Cabinet and of information supplied to other Government Departments in regard to the changes in the industries in which they were particularly interested. For non-manufacturing industries and services the returns were necessarily of a much simpler character but they served to complete the picture and in particular to furnish a measure of the extent to which man-power was being drained away for use on more vital purposes.

For certain special purposes a more intensive study of the available information had to be undertaken. For example,

it was necessary periodically to study the industrial, occupational and age composition of the whole body of men of military age remaining in civil life. These studies have been carried out by taking a representative sample—usually about 1 in 10. They enabled the Department to determine with precision just how many men there would be available in the next 12 months for withdrawal from any particular industry and from any particular occupation within that industry.

Similarly, by taking a representative sample of the Unemployment Insurance books surrendered in July of each year it has been possible to study the age composition of all the men in each industry, including those over military age, and the age composition combined with marital status of the women. The normal working of the Unemployment Insurance Scheme has also yielded valuable information about the weekly intake of new man-power into employment and has enabled figures to be compiled in regard, for example, to the numbers of women entering industry from the older age classes. By all these means a vital body of information has been built up which has enabled the Department to carry out with greater confidence its functions of mobilising the country's man-power and ensuring that it was being employed to the best advantage.

SECTION II.

STATISTICAL ASPECT OF MOBILISATION.

The task of mobilising the man-power of the country has been more difficult this time than it was in the last Great War for three main reasons. First of all we have had a huge Air Force with a very large industry behind it absorbing at the peak something like 3 million men and women. Secondly the Civil Defence Services, including Auxiliary Police, National Fire Service, A.R.P. and casualty services, amounted at the peak to nearly 400,000 men and women full-time apart from the vast numbers engaged part-time. Thirdly to a much greater extent this has been a mechanical war requiring great quantities of equipment of all kinds which have been reflected

in the greatly increased man-power requirements for the munitions industries. As an indication of the magnitude of these requirements I need only mention that at the peak of our munitions effort there were 2 million more persons engaged on munitions than at the end of the last war. The three factors I have mentioned taken together have made an enormous additional demand on our man-power resources compared with the last Great War.

Some idea of the magnitude of the task of mobilising the nation can be gained from the fact that since the middle of 1939 the total number of registrations of one kind or another for national service—registrations for military service, special registrations of men and women with particular skills such as engineers, shipbuilders, merchant seamen, ex-miners, ex-cotton operatives, nurses and midwives, registrations under the Registration for Employment Order and the registrations of boys and girls—has amounted to over 31 million. (The number of separate individuals registered is, of course, rather less). Following these registrations and apart from medical examinations and interviews for service in the Forces, over 9 million separate interviews of individual men and women have taken place at our Local Offices—over 7 million being interviews of women. Furthermore the District Man-Power Boards have considered and dealt with over 5 million individual cases of deferment or renewal of deferment of military service.

In the last 5 years the Employment Exchanges have filled 20 million vacancies for workpeople in industry ranging in quality from the most highly skilled operatives and administrative staff to general unskilled labourers.

MAN-POWER SURVEY—MID-1939 TO END 1944

WORKING-AGE POPULATION.

For the purposes of our Man-Power Surveys we take the "working age" population of Great Britain to consist of men aged 14 to 64 inclusive and women aged 14 to 59 inclusive. This is mainly because our detailed analyses according to industry and age relate to these two broad groups. However, men and women over these ages have contributed in an

important degree to the war effort. Large numbers who would otherwise have retired from employment have remained in industry and considerable numbers have returned to employment from retirement. It is estimated that the numbers of men aged 65 and over and women aged 60 and over in industrial employment in Great Britain have increased since mid-1939 by at least 350,000 men and over 50,000 women, or over 400,000 in all; and that at the peak there was a total of about 1,000,000 in industrial employment.

At mid-1939 the numbers of men and women of "working age" (*i.e.* men 14-64 and women 14-59) were approximately

Men	16,010,000
Women	16,040,000
Total	32,050,000

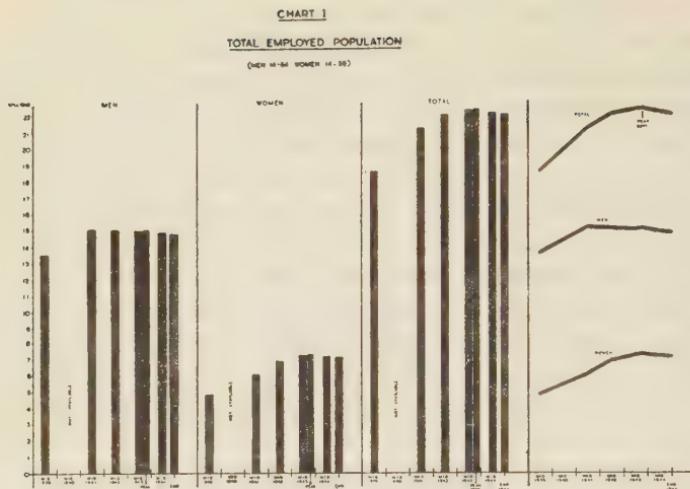
TOTAL MOBILISATION.

For the purpose of determining the extent to which the man-power of Great Britain has been mobilised we take the total number of men and women of "working age" in the Forces, Women's Auxiliary and Nursing Services, Civil Defence and civilian industries and services. The following Table gives these figures from mid-1939 to end-1944.

TABLE I.
TOTAL MOBILISATION.

	Men	Women*	Total	Percentage of total working age population		
				Men	Women	Total
Mid-1939	13,643,000	4,837,000	18,480,000	85.2	30.2	57.6
Mid-1941	15,115,000	6,010,000	21,125,000	94.7	37.5	66.0
Mid-1942	15,081,000	6,889,000	21,970,000	94.7	42.9	68.8
Mid-1943	14,975,000	7,237,000	22,212,000	94.1	45.1	69.6
Peak Sept. 1943... .	15,000,000	7,265,000	22,265,000	94.3	45.3	69.7
Mid-1944	14,863,000	7,093,000	21,956,000	93.4	44.3	68.8
End 1944	14,771,000	6,942,000	21,713,000	92.9	43.4	68.0

*The figures include women in part-time paid employment, two such women being counted as a unit. The *total* number of part-time women employed in industry, each counted as a unit, increased from 300,000 at mid-1942 to 900,000 at mid-1944. There was a slight decline in the second half of 1944.



The first point to notice is that mobilisation of men was virtually complete at an early stage of the war. By mid-1941 nearly 1½ million men had been added to the working population raising the total (excluding the unemployed) from 13,643,000 to 15,115,000. The mobilisation of women was at a slower rate and the peak was not reached until September, 1943, when the numbers in the working population had increased by 2,428,000 from 4,837,000 to 7,265,000 that is by about 50 per cent. Until 1941 recruitment to the Women's Auxiliary Services and entry into industry was on a voluntary basis and it is remarkable that under those conditions nearly 1½ million women (or over 25 per cent.) were added to the working population. Registrations under the Registration for Employment Order began in April, 1941, and the oldest age class registered—those born in 1893—was not registered until 6th November, 1943. By September, 1943, women aged 14-59 in the Services and industry represented no less than 45.3 per cent. of the female population of working age as compared with 30.2 per cent. at mid-1939.

It will be seen that the peak of mobilisation was reached in September, 1943, since when the numbers in the working

population have been falling. This has been due to an increase in wastage, the exhaustion of the reserves from the non-industrial classes and a decrease in the intake of juveniles.

In the case of men the wastage has been due in the main to war casualties, which have not only reduced the population as a whole through death and through the loss of man-power in prisoners and missing, but have also led to an increase in the numbers who are no longer capable of industrial employment and who must be counted in the non-industrial section of the population. Among women the decline in the working population has been due to the exhaustion of the abnormal supplies recruited from the non-industrial section and to the increased rate of wastage, mainly among married women specially recruited for war work, due to the strain of several years of war.

As regards the intake of juveniles, there was a continuous decline in the annual number of births since the post-war peak of the last war. Before 1914 it was a common thing for the total number of births to exceed a million each year but since 1922 until the outbreak of this war they have been considerably below this figure. If the number of births had remained stationary during the years from 1922 to 1930 at about 900,000 a year, the working population would now have been well over half a million bigger than it is. Such a reservoir of man-power would obviously have had an important effect on the magnitude of this country's war effort, particularly as they would all have been under 23 years of age.

The increase in the total numbers in the working population has been achieved in two ways. First by the absorption of the unemployed and secondly through the measures already described for the mobilisation of the non-industrial classes, *i.e.* the classes that are not normally in the Services or in industry.

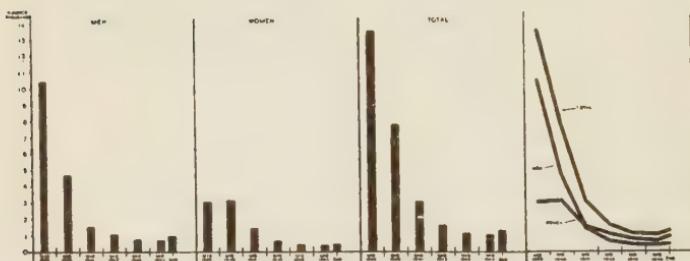
UNEMPLOYED.

The changes in the numbers of unemployed insured men and women of "working age" at the middle of each year from 1939 to 1944 and at the end of 1944 are given in the following Table :—

TABLE 2.
UNEMPLOYED.

	Men	Women	Total
Mid-1939...	1,043,000	302,000	1,345,000
Mid-1940...	467,000	314,000	781,000
Mid-1941...	158,000	146,000	304,000
Mid-1942...	103,000	59,000	162,000
Mid-1943...	76,000	36,000	112,000
Mid-1944...	71,000	31,000	102,000
End 1944 (Estimate)	86,000	44,000	130,000

CHART II
INSURED PERSONS UNEMPLOYED



It will be seen that about 564,000 of the 1,345,000 unemployed at mid-1939 were absorbed in the first year of war and a further 477,000 were absorbed in the second year. After mid-1941, when the unemployed had been reduced to about 300,000, the number continued to fall until at mid-1944 it was only 102,000. There was a slight increase of 28,000 in the second half of last year due to the release of immobile workers for whom employment in their home areas was not immediately available. Those now unemployed consist mainly of (a) immobile men and women whose capacity for industrial employment is very limited and (b) those temporarily out of work while changing from one job to another.

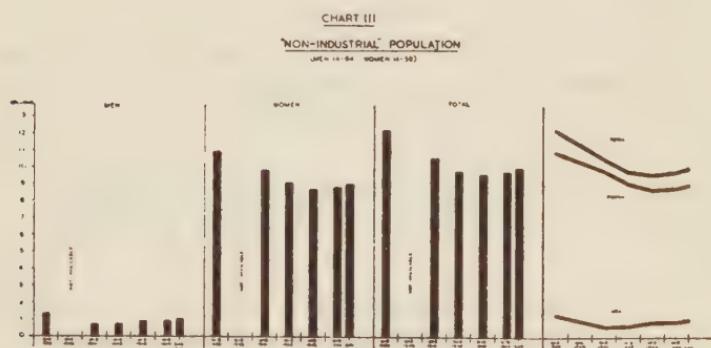
NON-INDUSTRIAL SECTION OF THE POPULATION.

The changes in the non-industrial section of the population are given in the following Table :—

TABLE 3.
NON-INDUSTRIAL SECTION OF THE POPULATION.

Date	Men		Women*		Total	
	Number	Change since preceding date	Number	Change since preceding date	Number	Change since preceding date
Mid-1939	1,324,000	—	10,901,000	—	12,225,000	—
Mid-1941	704,000	-620,000	9,874,000	-1,027,000	10,578,000	-1,647,000
Mid-1942	750,000	+ 46,000	9,082,000	-792,000	9,832,000	-746,000
Mid-1943	870,000	+ 120,000	8,747,000	-335,000	9,617,000	-215,000
Mid-1944	976,000	+ 106,000	8,896,000	+ 149,000	9,872,000	+ 255,000
End 1944	1,043,000	+ 67,000	9,034,000	+ 138,000	10,077,000	+ 205,000

*See footnote to Table 1. The figures in Table 3 include half the women in part-time paid employment and all those in unpaid work.



The 704,000 men in this section of the population at mid-1941 consisted of invalids and others not capable of service in the Forces or in industry as well as students and boys at school. The increases in this figure shown in the Table for later dates are due in the main to war casualties and the retirement of men no longer capable of industrial employment. The Table shows that over 1 million women had been mobilised from the non-industrial section of the population by mid-1941

before compulsory registration could have had much effect, and the attainment of this figure is a remarkable tribute to the spirit of the women of this country in coming forward to take their full share in the war effort. Compulsory registration provided a further spur and the year mid-1941 to mid-1942 was the year of maximum mobilisation of women.

CHANGES IN DISTRIBUTION OF WORKING POPULATION.

The foregoing figures, which cover the country's man-power taken as a whole, do not disclose the vast changes that have taken place in the industrial distribution of the working population. They also conceal the fact that even after the total mobilised man-power had reached its peak the intensity of mobilisation for vital war purposes continued to increase.

In order to show what has happened in this respect it is necessary to split up the total mobilised man-power into

- (1) Armed Forces.
- (2) Civil Defence Services.
- (3) Industry and other services.

It is further necessary to sub-divide the last mentioned group into its three main constituents :

- (a) Munitions (Group I).
- (b) Basic industries and services (Group II).
- (c) All other industries and services (Group III).

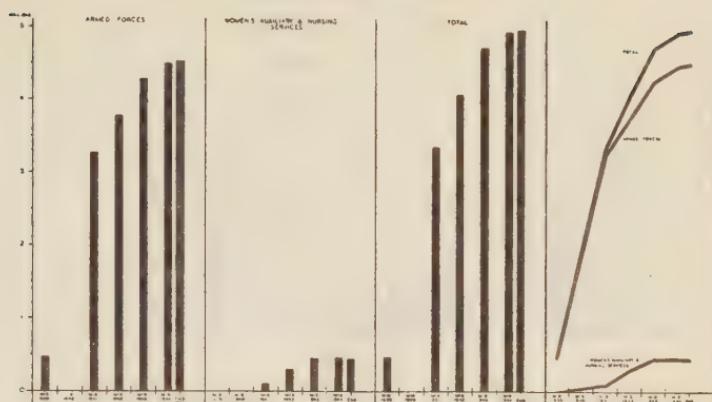
ARMED FORCES.

The strength of the Armed Forces and Women's Auxiliary and Nursing Services is given in the following Table :—

TABLE 4
ARMED FORCES & WOMEN'S SERVICES.

	Armed Forces	Women's Auxiliary and Nursing Services	Total
Mid-1939...	... 477,000	—	477,000
Mid-1941...	... 3,271,000	103,000	3,374,000
Mid-1942...	... 3,785,000	307,000	4,092,000
Mid-1943...	... 4,284,000	461,000	4,745,000
Sept. 1943	... 4,371,000	470,000	4,841,000
Mid-1944...	... 4,502,000	467,000	4,969,000
End 1944...	... 4,526,000	457,000	4,983,000

CHART IV
ARMED FORCES & AUXILIARY SERVICES



It will be seen that the strength of the Armed Forces continued to increase up to the end of 1944 while the Women's Auxiliary Services reached their peak in September, 1943. This is a remarkable achievement in view of the decline in man-power since September, 1943. The fact that the Fighting Services were at peak strength at the time when maximum impact against the enemy was required is a tribute to the success of our mobilisation.

CIVIL DEFENCE.

The full-time strength of the Civil Defence Services which for this purpose include the Police, the National Fire Service, and the various A.R.P. services, is given in the following Table :—

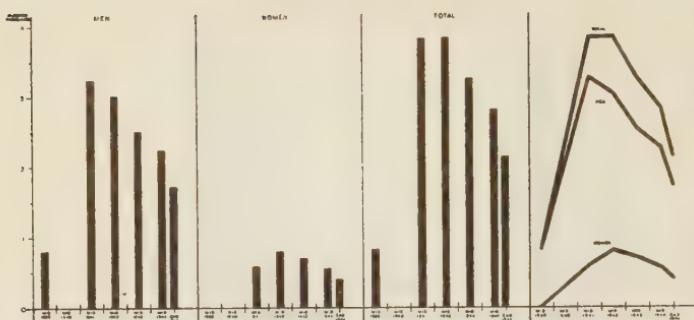
TABLE 5
CIVIL DEFENCE SERVICES.

		Men	Women	Total
Mid-1939	...	80,000	—	80,000
Mid-1941	...	324,000	59,000	383,000
Mid-1942	...	304,000	80,000	384,000
Mid-1943	...	253,000	70,000	323,000
Sept. 1943	...	245,000	66,000	311,000
Mid-1944	...	225,000	57,000	282,000
End 1944	...	173,000	40,000	213,000

These Services reached their peak in 1941 and their strength was maintained until 1942, although during that year men were being withdrawn for the Armed Forces and replaced by women. Since 1942 the strength of the Services has progressively declined.

CHART V

CIVIL DEFENCE SERVICES AND POLICE



INDUSTRY.

The labour force in industry taken as a whole (that is all industrial employment and services other than the Armed Forces and Civil Defence Services) is given in the following Table :—

TABLE 6.

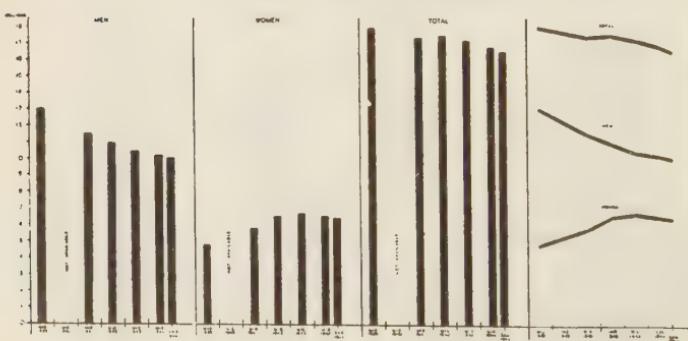
INDUSTRY.

	Men	Women	Total
Mid-1939	13,086,000	4,837,000	17,923,000
Mid-1941	11,520,000	5,848,000	17,368,000
Mid-1942	10,992,000	6,502,000	17,494,000
Mid-1943	10,438,000	6,706,000	17,144,000
Sept. 1943	10,384,000	6,729,000	17,113,000
Mid-1944	10,136,000	6,569,000	16,705,000
End 1944	10,072,000	6,445,000	16,517,000

CHART VI

NUMBERS EMPLOYED IN INDUSTRY

(QUARTERS 1939-44, WOMEN 16-59)



The number of men in industry has continuously declined due, of course, to the call-up of men for the Forces, the total decrease being 3,014,000. The number of women in industry on the other hand increased continuously up to September, 1943, the total increase being 1,892,000. The greatest increase in any one year in the number of women in industry occurred in 1941-42 when it amounted to over 650,000. This increase exceeded the reduction in the number of men and consequently in that year the total labour force in industry actually increased. Since September, 1943, there has been a decline both in the number of men and in the number of women in industry taken as a whole. The rate of decline among women is tending to accelerate.

GROUP I.—MUNITIONS.

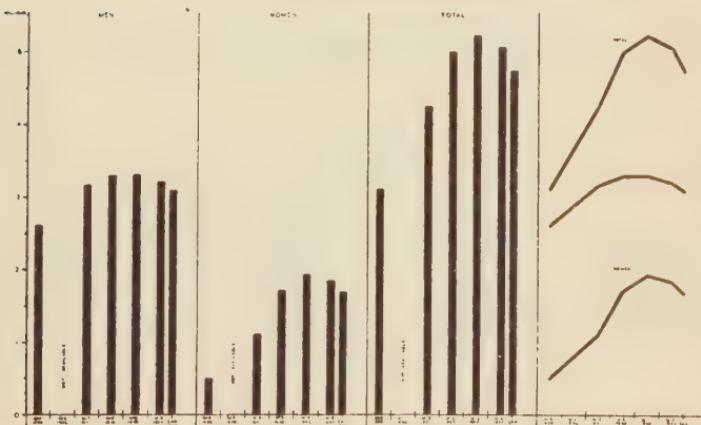
This group includes metal manufacture ; shipbuilding and ship-repairing ; engineering, motors, aircraft and other vehicles; metal goods manufacture, chemicals, explosives, oils, paint, etc.

The labour force employed in this group from mid-1939 to the end of 1944 is given in the following Table :—

TABLE 7.
MUNITIONS INDUSTRIES.

	Men	Women	Total
Mid-1939	2,600,000	506,000	3,106,000
Mid-1941	3,140,000	1,100,000	4,240,000
Mid-1942	3,285,000	1,705,000	4,990,000
Mid-1943	3,305,000	1,928,000	5,233,000
Mid-1944	3,180,000	1,831,000	5,011,000
End 1944	3,071,000	1,687,000	4,758,000

CHART VII
GROUP I (MUNITIONS INDUSTRIES)



The labour force in this group increased continuously from 3,106,000 at mid-1939 to 5,233,000 at mid-1943, an increase of 2,127,000 or 68 per cent., after which it fell continuously. Concurrently with this over-all increase there was a vast transference from home market and export work to direct employment on war production. By mid-1943 the labour force employed on the latter had increased by over 3½ million or nearly 300 per cent. An important point to note is that in spite of the call-up of men for the Forces—and notwithstanding the nature of the work substantial numbers of men were called up from this group—the number of men increased continuously until mid-1943, the increase amounting to 705,000 or 27 per cent. The number of women in the group also continued to increase throughout that same period, the increase amounting to 1,422,000 or 281 per cent. Between mid-1943 and the end of 1944 the number employed in the group declined by nearly half a million. Vast stocks of munitions had been built up. It also became necessary to effect a slight redistribution of man-power to provide for the developing military situation.

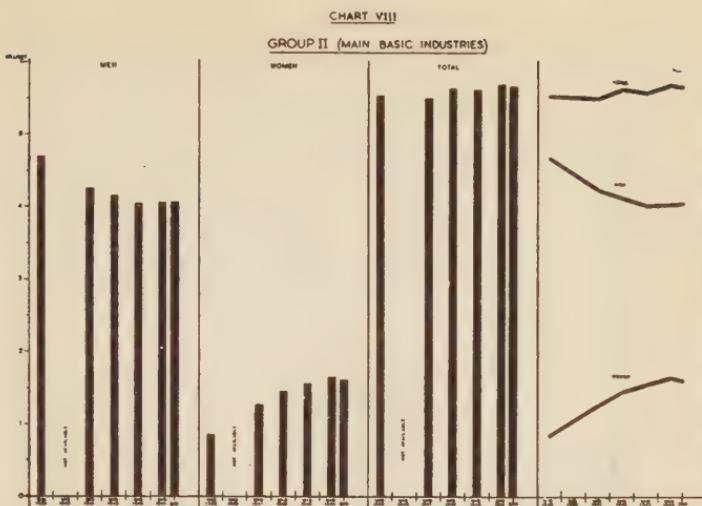
GROUP II (BASIC INDUSTRIES AND SERVICES).

This group includes agriculture and horticulture ; mining ; gas, water and electricity supply ; transport ; shipping and fishing ; food, drink and tobacco manufacture ; and National and Local Government Service.

The labour force of the group from mid-1939 to end-1944 is given in the following Table :—

TABLE 8
BASIC INDUSTRIES & SERVICES.

	Men	Women	Total
Mid-1939	... 4,688,000	852,000	5,540,000
Mid-1941	... 4,264,000	1,269,000	5,533,000
Mid-1942	... 4,154,000	1,496,000	5,650,000
Mid-1943	... 4,040,000	1,592,000	5,632,000
Mid-1944	... 4,051,000	1,635,000	5,686,000
End 1944	... 4,066,000	1,619,000	5,685,000



Taken as a whole the labour force of this group has remained fairly steady throughout the war. An interesting feature is that, while the number of men decreased between mid-1939 and the end of 1944 by 622,000, this decline was more than made good by an increase of 767,000 in the number of women in the group. It will also be noticed from the Table that the decline in the number of men ended at mid-1943 and has been followed by a slight upward movement. This was mainly due to the building up of the transport services—railways, roads and docks—and certain vital operational civilian services of the Service Departments for D-Day. Among the women the increase has been continuous right from mid-1939 to mid-1944. There was a slight decrease in the second half of the latter year.

Taking some of the individual industries and services in this group the following interesting features are to be observed. As shown above, there has been a net increase in the total labour force in the group between mid-1939 and the end of 1944 of 145,000. The increase in National Government Service has amounted to no less than 464,000, or about 86 per cent. over the 1939 figure. This is due very largely

to the increase in civilian staffs of the three Service Departments, including the numbers employed at stores, depots, and maintenance units. There has also been a slight increase, amounting to 32,000, or 7 per cent. in railway services and of 6,000, or about 5 per cent. in docks. The shipping and other transport group also shows an increase of 18,000, or 9 per cent. The numbers in agriculture and horticulture have also increased and, excluding private gardening which has been cut very severely during the war, the increase amounted to 92,000, or nearly 10 per cent.

Against these increases there have been decreases in mining and quarrying of 60,000, or nearly 7 per cent. ; in Local Government Service of 53,000, or nearly 7 per cent. ; in gas, water and electricity supply of 43,000, or 18 per cent. ; in road transport of 70,000, or 15 per cent. ; and in food, drink and tobacco manufacture of 138,000, or 21 per cent.

The increase in the employment of women has been particularly marked in National Government Service where the numbers have quadrupled, in railway service where they have been multiplied over five times, road transport where they have been multiplied over four times, and in agriculture where they have been nearly trebled. There has also been a substantial increase—about 50 per cent.—in Local Government Service.

GROUP III (ALL OTHER INDUSTRIES AND SERVICES).

This group is made up of four main sub-groups :—

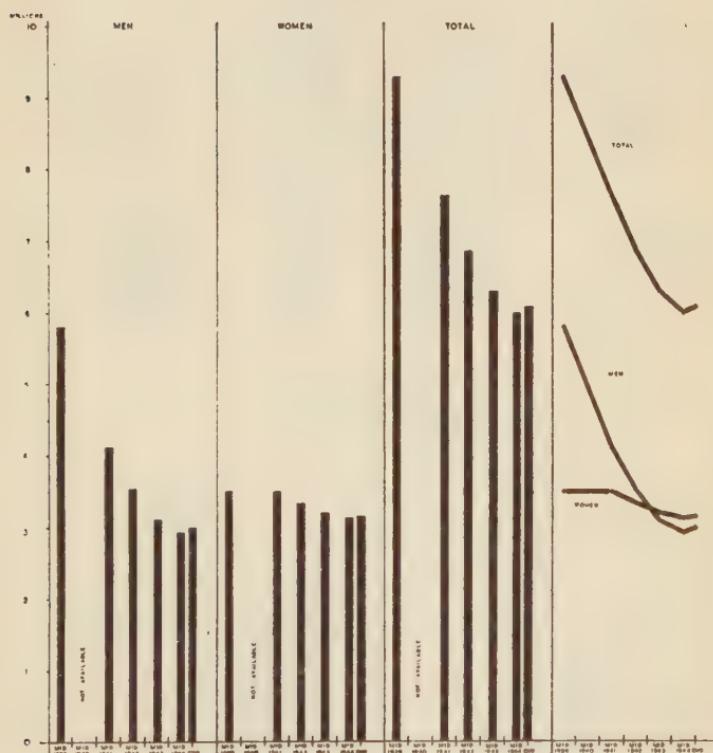
- (1) Building and Civil Engineering.
- (2) The distributive trades.
- (3) Manufacturing industries, mainly serving civilian needs.
- (4) Miscellaneous industries and services.

The labour force in the group taken as a whole from mid-1939 to the end of 1944 is given in the following Table :—

TABLE 9.
ALL OTHER INDUSTRIES & SERVICES.

	Men	Women	Total
Mid-1939	... 5,798,000	3,479,000	9,277,000
Mid-1941	... 4,116,000	3,479,000	7,595,000
Mid-1942	... 3,553,000	3,301,000	6,854,000
Mid-1943	... 3,093,000	3,186,000	6,279,000
Mid-1944	... 2,905,000	3,103,000	6,008,000
End 1944	... 2,935,000	3,139,000	6,074,000

CHART IX
GROUP III (LESS ESSENTIAL INDUSTRIES)



These are the industries and services that have yielded up very large numbers, particularly of men, for the Armed Forces and war industries and services. The number of men in the group decreased continuously from 5,798,000 at mid-1939

to 2,905,000 at mid-1944. This is a drop of 2,893,000, or almost exactly 50 per cent. There was a very slight increase in the second half of 1944. The number of women remained stationary in the first two years but thereafter decreased by 376,000 or about 11 per cent: up to mid-1944. The decrease has been felt in each of the four sub-groups. There can be no doubt that the labour force of these industries has been reduced to the absolute minimum. The reductions have in many cases meant a real sacrifice of standards and amenities by the civil population.

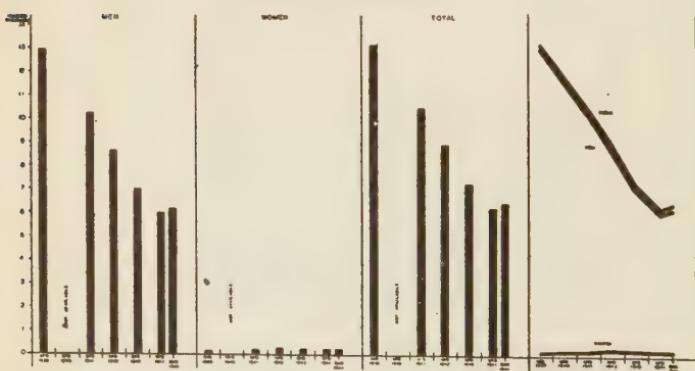
BUILDING AND CIVIL ENGINEERING.

The following Table gives the labour force in these two industries from mid-1939 to the end of 1944 :—

TABLE 10.
BUILDING & CIVIL ENGINEERING.

	Men	Women	Total
Mid-1939...	1,294,000	16,000	1,310,000
Mid-1941...	1,022,000	21,000	1,043,000
Mid-1942...	864,000	29,000	893,000
Mid-1943...	700,000	26,000	726,000
Mid-1944...	600,000	23,000	623,000
End 1944...	622,000	23,000	645,000

CHART X
BUILDING AND CIVIL ENGINEERING



The fact that these industries are widely dispersed over the whole country and were composed largely of active mobile men has made them a fruitful source of man-power for war

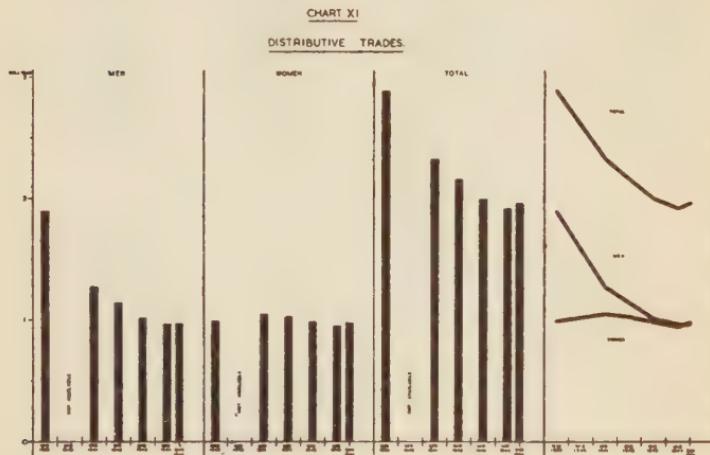
purposes. During the five years mid-1939 to mid-1944 the number of men in the two industries decreased by 694,000, or about 54 per cent. There was some increase in the second half of 1944. There has been a very slight increase in the number of women employed.

DISTRIBUTIVE TRADES.

The labour force of these trades for mid-1939 to the end of 1944 is given below :—

TABLE II.
DISTRIBUTIVE TRADES.

	Men	Women	Total
Mid-1939...	1,888,000	999,000	2,887,000
Mid-1941...	1,276,000	1,056,000	2,332,000
Mid-1942...	1,140,000	1,033,000	2,173,000
Mid-1943...	1,016,000	993,000	2,009,000
Mid-1944...	971,000	956,000	1,927,000
End 1944...	970,000	989,000	1,959,000



Like building and civil engineering the distributive trades have given up a very large proportion of their male labour force. Between mid-1939 and the end of 1944 the numbers employed decreased by 915,000 or close on 50 per cent. Between mid-1939 and mid-1941 the number of women employed showed a moderate increase so that although the numbers of men decreased by 612,000 the drop in the industry

for men and women combined amounted to 555,000. From mid-1941 onwards, however, the number of women employed steadily declined until mid-1944 largely as the result of the transfer of mobile women to munitions work and other vital war purposes. At mid-1944 the number of women employed was 43,000 less than the number at mid-1939. There was a slight increase in the second half of 1944.

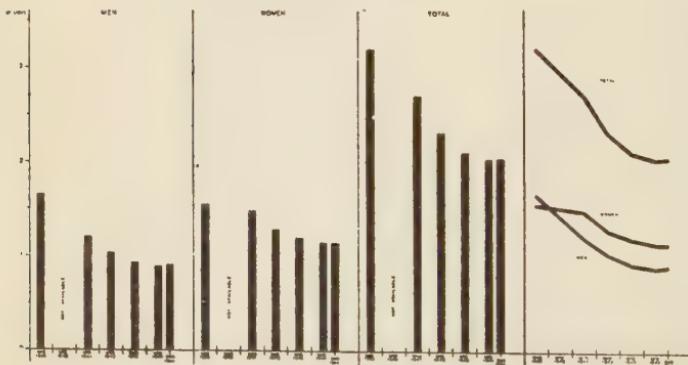
MANUFACTURING INDUSTRIES.

This group includes the following industries—textiles, clothing, leather and leather goods, footwear, wood, paper, bricks, and tiles, pottery, glass and miscellaneous manufactures. The labour force of these industries taken as a group from mid-1939 to end-1944 is given in the following Table :—

TABLE I2.
MANUFACTURING INDUSTRIES.

	Men	Women	Total
Mid-1939...	1,651,000	1,547,000	3,198,000
Mid-1941...	1,202,000	1,480,000	2,682,000
Mid-1942...	1,032,000	1,276,000	2,308,000
Mid-1943...	927,000	1,195,000	2,122,000
Mid-1944...	899,000	1,146,000	2,045,000
End 1944...	907,000	1,143,000	2,050,000

CHART XII
GROUP III - MANUFACTURING INDUSTRIES



There was a continuous decline until mid-1944 in the number of men employed in these industries, the number having fallen by 752,000, or about 46 per cent. from 1,651,000

at mid-1939 to 899,000 at mid-1944. There was a slight increase in the second half of the latter year. The number of women employed has also steadily decreased. It has dropped by 404,000, or 26 per cent. from 1,547,000 at mid-1939 to 1,143,000 at the end of 1944. These decreases are, of course, largely due to call-up for the Forces and transference to munitions work. They largely account for the cuts in the supply of manufactured articles for civilian use. In addition to the over-all drop in the man-power employed there has, of course, been a transference of capacity in a large number of these industries from civilian work to war work.

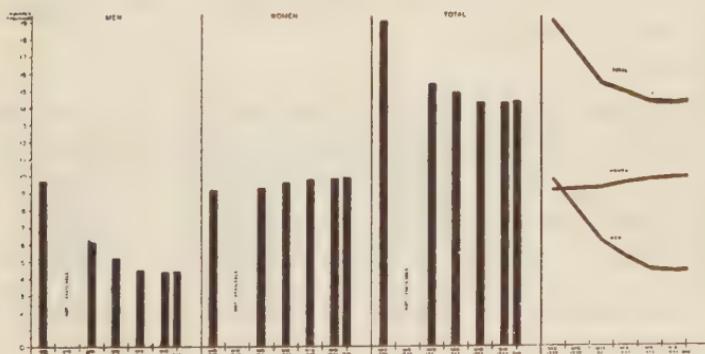
MISCELLANEOUS INDUSTRIES AND SERVICE.

This group includes commerce, banking, insurance and finance; professional services; entertainment; hotels, restaurants, etc.; laundries and cleaning. In this group there has been a very substantial comb-out of men, mainly for military service, but the number of women employed has shown some increase. The figures for the labour force from mid-1939 to the end of 1944 are given in the following Table :—

TABLE 13.
MISCELLANEOUS INDUSTRIES & SERVICES.

	Men	Women	Total
Mid-1939...	965,000	917,000	1,882,000
Mid-1941...	616,000	922,000	1,538,000
Mid-1942...	517,000	963,000	1,480,000
Mid-1943...	450,000	972,000	1,422,000
Mid-1944...	435,000	978,000	1,413,000
End 1944...	436,000	984,000	1,420,000

CHART XIII
GROUP III - MISCELLANEOUS SERVICES



The Table shows that the number of men has declined by 529,000, or nearly 55 per cent. from 965,000 at mid-1939 to 436,000 at the end of 1944. On the other hand the number of women employed shows a continuous increase by 67,000, or over 7 per cent. from 917,000 at mid-1939 to 984,000 at the end of 1944. Taking men and women together the labour force of this group has dropped by 462,000, or nearly 25 per cent.

You will see that in each of the four groups making up the Group III industries, there was a slight upward turn of the curve. This follows a very heavy and continuous downward trend and is an indication that we have reached the end of the road as far as our civilian industries are concerned and are just beginning to turn the corner.

MOBILISATION FOR OPERATIONAL NEEDS.

It has already been shown that the mobilisation of man-power taken as a whole reached its peak in September, 1943, and that since that date the working population has been declining. This, however, has not meant that the mobilisation of man-power for immediate war needs has declined. There has been a continuing marked increase after making good all wastage, in the numbers in the Armed Forces, and in certain services vital to operational requirements, such as transport and the civilian establishments of Service Departments. Between September, 1943, and D-Day the numbers of men and women employed in this section of the working population increased by no less than 200,000. Accordingly, while our man-power taken as a whole has been running down, the intensity of our mobilisation for operational needs has continued to increase, and it has, in fact, been maintained at this high level right to the end of 1944.

SUMMARY.

The Increases in man-power between mid-1939 and mid-1943 when mobilisation had almost reached its peak were :—

	Men	Women	Total
Armed Forces	3,807,000	461,000	4,268,000
Civil Defence Services	173,000	70,000	243,000
Group I	705,000	1,402,000	2,107,000
Group II	—	740,000	740,000
Total Increases ...	<u>4,685,000</u>	<u>2,673,000</u>	<u>7,358,000</u>

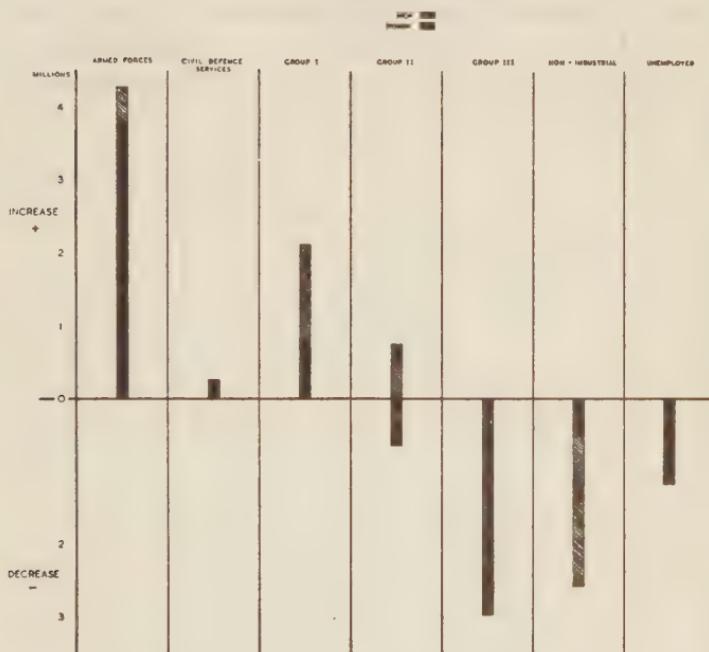
The *Decreases* in man-power between mid-1939 and mid-1943 were :—

	Men	Women	Total
Group II	... ... ... 648,000	—	648,000
Group III	... ... ... 2,705,000	293,000	2,998,000
Non-Industrial	... ... ... 454,000	2,154,000	2,608,000
Unemployed	... ... ... 967,000	266,000	1,233,000
Total Decreases	... 4,774,000	2,713,000	7,487,000

CHART XIV

MAN POWER - INCREASES AND DECREASES

MID - 1939 TO MID - 1943



It will be seen from these figures that the increase of nearly $4\frac{3}{4}$ million *men* for the Armed Forces, Civil Defence and the munitions group has been obtained at the expense of Group II, Group III, the non-industrial section and the unemployed. The increase of nearly $2\frac{3}{4}$ million women in the Women's Auxiliary Services, Civil Defence, munitions group

and Group II industries has been obtained from the non-industrial classes and also from Group III industries and the unemployed.

This still does not disclose the whole story—for example, large numbers of women from the non-industrial classes went into the Group III industries to replace women who had either gone into the Women's Services or into the industries in Groups I and II.

On the assumption, however, that a man or woman was only transferred once, that is, that there was no industrial turnover of labour, no subsequent transfers of labour after the first one, no transfers within the Services or within Civil Defence or between industries in the same group, or within individual industries, the figures show that there have been at least $7\frac{1}{2}$ million transfers.

GODFREY H. INCE.

Planning and Economic Privilege⁽¹⁾

(THE NOTION OF EQUITY IN ECONOMICS)

If I started off by saying that at the end of this paper I should be happy to answer any questions except those emanating from yarn agents, residents of Blackley and adherents to the Quaker religion I imagine there would be considerable eyebrow raising here. Possibly the Chairman would be rendered dumb by surprise, possibly the etiquette for dealing with a guest speaker would make him hold his hand. But I have no doubt that my stipulation would entail a gross violation of the age-long procedure of this Society, nor would the offence be mitigated if I went on to assert that in my experience the classes I named did not contribute anything useful to discussions. Nevertheless I doubt whether there is any explicit clause in your rules which prescribes freedom of discussion. After my outrageous proposition you would of course take care to make it explicit, or at least future speakers would be given to understand that freedom of discussion without any discrimination was a principle of the Society's conduct. It is of course implicit in your constitution. It is implicit in the constitution of any democratic order. I know the difficulty of defining democracy, and I know that the concept can be narrowed down until it comprises nothing more than rule by the majority. But it has been conceived and worked here in much wider terms, and the whole life of our community is informed by the principle of non-discrimination. Politically this means that every person has the right to influence the conduct of public affairs by the free expression of his opinions and by free political association, and the right to have his wishes and interests taken into consideration. I must not spend time in elaborating this principle in the political field since we are here to discuss economic problems. But our economic system works in this milieu and we can translate the principle directly into the economic sphere. Every person has the right to influence the course of economic affairs by the

¹ This Paper was read before the Manchester Statistical Society on 10th May, 1944.

free use of his resources, and the right to have his economic interests taken into consideration. Professor Pigou in his article on *Principles of Compensation* in the ECONOMIC JOURNAL of December, 1925, put it in this way ; " Similar persons should be treated similarly and since this does not carry us far enough —different persons should be treated similarly unless they are dissimilar in some relevant respect." For convenience of discussion I will sum up the matter in another dictum : " Equality is never absolute, but may perhaps be defined as the absence of discrimination for reasons which are felt to be irrelevant."

Now the State in its intervention in economic and social affairs has to subscribe to this principle. Pure economic analysis can be conducted in disregard of it, but not the political economy of a Western democratic community. I remember that when my teacher, Professor Cannan, got on to Public Finance he made the whole subject revolve around the two great principles of Equity and Economy, and he would test every fiscal measure, both on the revenue and the expenditure side, by these criteria. That the absence of discrimination for reasons which are felt to be irrelevant is a governing principle of our public finance can be illustrated in every direction. If two contiguous houses, alike in every physical respect, are assessed at different figures for rating purposes, the ratepayer with the higher figure will appear before the Assessment Committee with an established and irrefutable claim for readjustment. He doesn't seek so much as demand equity. Two taxpayers with equal gross incomes and equal qualifications for rebates can only be mulcted of the same amount in income tax. Nothing brings the Englishman quicker to his feet than the suspicion of an anomaly. It is one of the most hard-worked words in political and social argument. " Mr. Speaker, I smell an anomaly. I see it floating in the air. I demand that it be nipped in the bud." Despite the *De minimis non curat* precept, equity in these matters has to be carried to the third decimal place if it is possible. In the midst of a great war which scatters hardships in an indiscriminate degree beyond all hope of correction, meticulous

regard has to be paid to considerations of equity in the detailed governmental conduct of the war economy. One example that comes to my mind is the War Damage Act. The apportionment of the contributions between ground landlords and ground lessees, superior landlords and sub-landlords, lessors and lessees, mortgagors and mortgagees, life interests, reversionaries, rack tenants, and other parties was a matter for keen debate and lively controversy, and the operative test was expressed in the stock opening to any protest or counter-protest. "It would be anomalous if . . ." And it is interesting to note with what assurance the subsequent argument is invariably maintained. "We are not asking for a favour" begins the spokesman for a particular class or interest, and equity at once rears its ugly head, ugly that is to the Minister in charge of the measure. The Excess Profits Tax is under continual fire because of its alleged anomalies. Its indefensible character lies not in the confiscatory level of the impost but in the discriminating results in practice. The uniformity of application in this case entails discrimination because of the failure to allow for dissimilar circumstances. You will never convince the aggrieved parties that they are the victims of bad luck; their complaint is of injustice. The legislation relating to our war economy is dominated by this search for equity, but it is not merely a war-time phenomenon. It is too often forgotten that the red tape of the Civil Service is imposed upon it by the fear of creating a precedent. Just after the last war a delightful skit appeared in the form of a government file dealing with Silas Jonas's application for cow cake. As has been pointed out, the business man's reaction is "Let the fellow have his cow cake and get on with it," but the civil servant has always in front of him the possibility of a million such requests and a fusillade of Parliamentary questions asking why if one has been granted others have been refused. If an old lady of 70 in Lancashire without means of support receives a State pension and supplementary allowances of 30/- a week, there are no relevant grounds for giving an old lady in similar circumstances in Yorkshire a penny more or less. For one living on the South Coast a lesser requirement in winter fuel would be a relevant

ground for a smaller seasonal supplementary allowance, but I doubt if the distinction could be made between one side of the Pennines and the other. As I remarked, the problem comes up in every direction. War medals as a form of reward for services rendered are perhaps not altogether outside the purview of the economist, but in any case I draw attention to the controversy which will range around the award of decorations for the Battle of Britain. Who qualified for recognition in 1940 and 1941? Who was in the front line? Special pleas for the garrison at Dover spread out endlessly in view of the repeated proclamation that we were all in the front line. Even the apparently relevant distinction between overseas and home service, and the concomitant distinction between service personnel and civilians, provokes invidious contrast between uniformed clerical work in a military establishment in Cairo and the unsedentary duties of London, Bristol or Manchester bus conductresses during air raids. And, to keep the equity controversy going, we now have the equal pay for equal work demand coming of age in politics. If the work is equal, is sex a relevant ground for discrimination? No wonder the Government shied off an official decision on this issue, since, as I have insisted, the relevancy test is the decisive one. I am interested to observe that the one or two economists who have committed themselves recently to correspondence on this issue have endeavoured to prove that the difference in pay emerges as a result of market forces and not by arbitrary discrimination. I do not subscribe to this view, but I note the implicit repudiation of any justification for unequal treatment.

The land acquisition problem in respect of post-war reconstruction provides another example. The State is to intervene, and one feature of its intervention is the proposal to acquire land at its 1939 value. Is there a relevant distinction between property in land and any other form of property? Here is the Prime Minister's statement on this matter: "We have already declared in 1941 that all land needed for public purposes shall be taken at prices based on the standards of value of 31st March, 1939. This was a formidable decision

which selected property in land for a special restrictive imposition. Whereas stocks and shares, and many classes of real property have gone up in value during the war, and when agricultural land on account of the new proposals and prospects open to farmers has also risen in value, the State has the power, which it will on no account surrender, to claim all land needed *bona fide* for war industry or for public purposes at values fixed before war-time conditions supervened." Well, in spite of this statement, or perhaps because of the admissions contained in it, I feel that this is not the last word on the subject. If as a result of currency changes, post-war property prices settle down at say 40 or 50 per cent. above the pre-war level, the claim in equity of the landowner will not be stilled, nor in spite of the eternal prejudice against the landowner do I think the public conscience would be easy if the action was confessedly, as in the Prime Minister's version, a piece of blunt discrimination. The distinction between land and other property must be made to appear relevant in essence, and not purely out of expediency. The arguments for such a relevant distinction have, of course, not waited for our time before appearing.

A study of the Uthwatt Report provokes some interesting speculation on indirect methods of determining the use of land without the blatant discrimination entailed in the above proposals.* The compensation problem is really a facet of the discrimination problem. When do restrictions on the use of land overstep the mark? As we know, regulations governing land development and building construction grow more stringent with times. If wider streets are prescribed the space remaining for actual building sites in any given area is necessarily curtailed. The landowner may as a result obtain a lesser return from his property than the more congested building previously permitted would have yielded. Is this discrimination in comparison with the treatment of landowners who developed at the earlier stage? This is not conceded. A straight up skyscraper will furnish more accommodation, and probably more revenue, than one which under

* See in particular the section on PRINCIPLES OF COMPENSATION pp. 19-22.

later regulations has to be set back successively above certain heights. Is this discrimination? Under prevailing notions of equity it is not. But, as the Uthwatt Report remarks, the history of the imposition of obligations without compensation has been to push that point progressively further and further on, and to add to the list of requirements considered to be essential to the well-being of the community. Now the limiting case is reached when you secure a green belt for the community not by acquiring the land but by prescribing that only buildings of no height at all can be erected on it. The State could preserve the countryside at no expense for compensation by a veto which amounts in practice to confiscation of the proprietary interest in the land. Would anyone contend that this conforms with equity? Nevertheless there is an ominous ring about the dictum of Justice Wright quoted in the Uthwatt Report (p. 20). "I shall assume that the Crown has no right at common law to take a subject's property for reasons of State without paying compensation. I think however, that the rule can only apply (if it does apply) to a case where property is actually taken possession of, or used by, the Government, or when, by the order of a competent authority, it is placed at the disposal of the Government. A mere negative prohibition, though it involves interference with an owner's enjoyment of property, does not, I think, merely because it is obeyed, carry with it at common law any right to compensation. A subject cannot at common law claim compensation merely because he obeys a lawful order of the State."

I had thought of quoting independently the question of Service pay as a problem in equity arising out of State action; but the line of thought in the above legal dictum suggests a possible argument for employment by the authorities. The State does not conscript persons for the Forces; it merely forbids people of a certain age and physique from pursuing any other occupation or indulging in leisure. This rules out any consideration of equity or compensation arising out of the comparison with civilian earnings, since these opportunities are not open to people of military standard. I leave it to you

to convince a veteran of the Eighth Army of the justice, logic and subtlety of this.

As a last illustration from the contemporary scene I call attention to the dislike and suspicion of the prevailing system of priorities. Is the discrimination always on relevant grounds? With one's car jacked up in the garage, one cocks a suspicious eye at any private car on the road. Doctor! Pass, doctor, all's relevant. But some of the numerals and hieroglyphics on the windscreen do not convince on a fine Sunday afternoon in Spring. Consumer rationing with its concessions for the young, for the sick and for heavy manual work, is a striking example of equitable distribution with discrimination on relevant grounds. As for allocation of materials and supplies the not infrequent complaints, legitimate or otherwise, about unfair discrimination between small and large concerns and between multiple, single and co-operative traders indicates that notions of equity have not been altogether satisfied. The fact that they never will be is beside the point.

Let me re-emphasise at this stage that all this develops out of State intervention in the economic field,* and then let me contrast the attitude towards this man-made intervention with the more or less philosophic acceptance of the indiscriminate blows of fortune dealt apparently by an impartial Providence. There is all the difference in these matters between the *deus ex machina* and flat-footed human intrusion into the affairs of life. When the economic forces appear anonymous, and even if human are not discernibly contrived, human beings will accept an almost incredible difference in treatment and in the resulting lot. The philosophy, indeed religion, at its loftiest was expressed in the verse of the old hymn :

* It is incredible to what lengths a government is driven in its endeavour to avoid the charge of discrimination. Here is an illuminating example extracted from a note in the *Times* of 2nd May, 1944 :—" By the end of 1934 the demand for pennies had revived. The public is fond of new pennies, especially at Christmas. As none had been issued in 1933, the Royal Mint felt that its 1934 issue would be comparatively small and that there would therefore be some heart-burning among people who could not get new specimens. Accordingly, they darkened all their 1934 pennies before sending them to the banks, and few people detected the deception."

The rich man in his castle,
The poor man at his gate ;
God made them high or lowly
And ordered their estate.

I admit that this hymn is not chanted with such fervour, if it is used at all, in choirs and places where they sing nowadays, but it throws a good deal of light on the workings of an unplanned economy such as prevailed when this psalm of life was in its heyday. Let me expatiate at what may seem inordinate length upon the fascinating problems opened up by the assumption that governments became endowed with control over the weather. We all recognise the flagrant injustices perpetrated by Providence in this matter. It rains on the Sunday-school outing and shines on Ascot. It snows on the workers' Bank Holiday and allows rich migrants to bask on the Riviera. The hard-working farmer is ruined by a frost, or a drought, or even by exceptionally good crop weather. And every time mankind shrugs its shoulders and calls it a day or a season. But examine the situation if the power of control should fall into the hands of elected governments. In the first place a Test Match in Manchester would be favoured with fine weather throughout. It would appear difficult if not impossible to imagine anyone cavilling at that. Now I do not know if the bar at the Old Trafford is run by concession, but if it is, the rent paid discounts for prolonged interruptions of play. So much so that authoritarian imposition of an anti-cyclone would set up a clamour for revision of the contract, or compensation in lieu thereof. In the spiritual home of Neville Cardus I venture to go on to speculate whether a British Government in control of the weather would risk the holding of Test Matches. The bonds of Empire are strong : the two wars have shown that. But would they stand a sharp shower, a hot sun and a sticky wicket with three Australian wickets falling quickly after lunch ? The Meteorological Office of our controlling government could not do otherwise than banish late frosts with their disastrous effects on the fruit blossom. But there are parts of England comparatively immune from late frosts which would lose the premium on

land rents arising out of that immunity, and the government's intervention would be the source of this destruction of property values. With our outside domestic piping the government would be required to temper winter frosts to a degree which would not immobilise taps, baths and other toilet equipment. But the records to date have warranted the plumbing industry in reckoning upon an annual quota of burst pipes and cisterns, and a bonanza Great Frost once or twice in a generation. Its acceptance of the change would be made dependent upon the capitalisation of the losses into a grant. Invariable fine weather for the popular Bank Holidays would result in an uncovenanted benefit to outdoor amusements and a corresponding infliction on indoor entertainments, since the occasional wet holidays dealt out by Providence fill theatres and cinemas to the roof and are a factor in the estimates on which these undertakings are initiated and run. All these complications would distract a government honestly inspired by considerations of the general interest, but any attempt to operate climatic conditions for the benefit of sectional interests would go near provoking a revolt. The temptation to prolong a cold spell far into the spring in order to give a fillip to a depressed coal industry would clash with the impatient longing of the textile and clothing trades for the shedding of fur coats, and a spell of costume weather; and the voting strength of back gardeners and allotment holders would constitute a formidable deterrent. The climatic tables showing regional variations would take on a sinister air, and the weather chart would be a hanging *memento mori* to any Ministry. The metaphor which speaks of the barometer of public opinion would acquire an awesome significance.

Now the self-same problems arise with a government endeavour to temper the economic weather to shorn lambs, or to manipulate it for any other reason. The more the impersonal forces of the market stand revealed as humanly contrived forces the more strident will the demands for equal treatment become. Private prayer will be progressively replaced by lobbying. Only a dictatorship can hand out economic fortune and misfortune arbitrarily, and get its

rulings accepted passively like the vagaries of the physical weather. The beautiful simplicity of nineteenth century economic philosophy lay precisely in this, that most of the forces playing on the system were regarded as anonymous forces coming from outside. Along with the weather, new inventions, changes in taste and fashion, all the vagaries of consumer demand, indeed almost the whole welter of influences affecting supply and demand were regarded as external data operating out of the blue. The cosmetic trade is fairly open to the risk of women changing their minds about lipstick and powder, and deciding to present shining faces to the world in the future. Some embittered losers will curse the fickle jades, but the smart ones will concoct new nostrums for endowing women with clear natural complexions while the unenterprising will stagnate in the depressed section of the industry. But suppose a Savanarolical regime puts a ban on paint and powder. The onus is no longer on the Almighty for having created a fickle sex. The cosmetic industry will have a target here on earth, and it will conduct a strenuous mundane campaign. There was a notable case in the thirties when the British Government made a trade treaty with the Scandinavian countries which provided for increased takings of coal from the N.E. areas in return for reciprocal concessions. The German and Polish coal thus driven out of the Scandinavian markets sought an outlet in the Mediterranean area, where it ousted Welsh coal. It was found impossible to persuade the Welsh that this was a simple case of the Lord giveth, the Lord taketh away. The Jarrow shipyard case (and the subsequent steelworks episode) is a classic example of the odium which attaches to the discriminatory effects of authoritarian intervention.

It is not the case of course that classical doctrine and nineteenth-century social philosophy did not allow for any shelter against the economic weather. It is not perhaps sufficiently appreciated at the moment that the Beveridge scheme is merely the latest version of the Elizabethan Poor Law. From being a religious, it long ago became a civic duty to relieve economic hardship, and in the authoritarian sphere there

have for a long time been established principles in this matter. All cases of inability to maintain life at a certain level should be relieved by calls on all people able to contribute. The amount and form of relief, and the criterion of ability to pay have changed over time, but the test of relevancy applied throughout. The important thing to note is that citizens, on both sides, were dealt with *qua* citizens. *All* comparatively well-off citizens contribute to improve the lot of *all* distressed citizens. I emphasise this point because it is the attempt to assist people in some other capacity which leads to the discrimination. My criticism of current planning is that attempts to aid some producers entail irrelevant discrimination against other sections of producers, or against sections of consumers, and that economic privilege emerges inconsistent with the doctrines which I have characterised as inherent in a free democratic order.

Now we are all aware that planning in this country has taken a sectional form. Very few people envisage, and no one expects, that it will take any other form in the near future. We shall not get nationalisation of all the means of production and distribution, but a continuance of piecemeal planning of the pre-war type. I am taking planning in the narrow sense of the term. I refuse to apply this new terminology to developments of the social services such as the Beveridge Scheme or the new Education Act. If these are planning then, as I suggested before, authoritarian planning goes back to the Elizabethan Poor Law and perhaps before that. What I am concerned with here are the marketing and industrial schemes covered by the generic concept of 'Self Government in Industry.'

Let us trace the process and history of State assistance to a particular industry. I pass over the initial difficulty of defining and segregating an industry for this purpose, since this must be a sore point up here. I confess however to a mild amusement when perusing essays in economic metaphysics demonstrating that cotton and rayon are "Two materials not two industries" and the counter manifestos proving the exact opposite. It doesn't matter in any case, since the cotton

industry for the purposes of the Enabling or Reorganisation Act is what the Board of Trade or the appropriate government department jolly well says it is.

Now the object of assisting an industry is to improve the lot of the people engaged in it. Since the process is one of piecemeal planning no one is going to be bothered with, or be bothered by, an industry which is for the moment fairly content with its lot. The old time remedies were a tariff, a subsidy, financial concessions (derating, reduced assessments, larger depreciation allowances, etc.) or perhaps government contracts. Now it is an axiom that in a free system any economic benefits tend to be dissipated in time, although the run may be long as well as short. An improvement in the fortunes of an industry, whatever its origin, tends to attract new additional resources. Planning of the self-government in industry type has come precisely because the old time remedies either failed, or if successful were nullified by the process of diffusion. The history has been one of progressive tightening of schemes up to the logical stage of the closed shop for any industry covered by a plan. Artificial premiums can only be sustained by their conversion into artificial privileges.

The elementary stage in the planning of an industry is the marketing scheme designed to secure higher prices for the product or service. There are various forms of marketing schemes, and we need not dwell on their weaknesses. The point is that if they are successful they encourage expansion of output inside the industry and from outside. This almost inevitably leads to regulation of production, with quotas inside the industry and *a fortiori* exclusion of new entrants into the occupation. Experience of the working of plans up to date shows that this stage will come sooner or later, and that you might as well start with it right away. As a result we get the approach to the problems of an industry which cannot be better expressed than in the blunt words of an article which appeared in *The Times* in the thirties. It laid down the following fundamental principles, proclaiming them as such :—

Firstly : The available trade is to be held the common property of all existing operators to be shared on an agreed basis (Note that this confers the fee simple of an industry upon the people who happen to be engaged in it on a particular date).

Secondly : In the process of change the individual producer must be satisfied that his share of the trade is recognised and conserved, or compensation paid in lieu thereof (Note the statutory recognition of the relative status quo).

Thirdly : Some means must be devised for discouraging new producers who might be attracted by the success of the plan (This is the operative clause of modern piecemeal planning, and stamps it with the mark of inequity).

The planning legislation of the pre-war period was soon modelled on these lines. Baldly, it provided for the registration of producers, and quotas based on previous output, existing capacity or some other "fair share" index. There was an appointed day, and relative positions at that date were rendered sacrosanct. From then no internal developments were permitted which might prejudice the interests of existing producers.

The Hops Scheme, established just 10 years ago, was made watertight from the start (without any guarantee to the consumer that beer would be made equally so). Individual selling quotas based on producers average production for 1928 to 1932 were granted for the five years ending 31st July, 1939. That is to say there was statutory limitation of hop growing to those already in the industry.

How the success of a scheme is threatened by potential incursion in the way I have described can be learned from a rather naive defence of the quota device put up by Lord Wolmer in reply to later criticism : "At the present moment farmers are scratching their heads to know what crop they can grow which is going to give them a profit. They see that

the Hops Board has been able to sell hops at a figure which gives an efficient grower a fair return, and therefore anyone who has land suitable for hops, and knows anything about growing hops, will be very tempted to grow hops." Privilege is the conferment by the State of power to tell other people to go and scratch their heads somewhere else. Lord Wolmer, I may add, is, or was at that time, a hop grower on a large scale. The result was, as anyone with a knowledge of economic repercussions could have foretold, the artificial creation of a property value in the right to work in a particular occupation. The hops quota, *i.e.*, the right to grow hops, acquired a large independent selling value. I have seen an advertisement of a farm with fourteen acres of hop gardens in which the Basic Hops Quota was separately valued at £2,500. On what principle does the State hand out this largesse? It is interesting to note how speedily such benefits are transmuted into rents or premiums which discount all the gains to the succeeding owner or tenant.

In the case of potatoes there was no direct imposition of quotas or exclusion of new entrants, but a fine of £5 per acre was imposed on all extensions of potato growing. From November, 1934, there was also import control. Imports were prohibited except under licence, which authorised existing dealers to import specified quantities. These licences were said to change hands freely in the market at considerable premiums.

The opening and operation of bacon-curing factories was made subject to licence by the Bacon Development Board. The Board had power to attach to the licences such conditions as it considered necessary for the efficient production of bacon on the licensed premises, and for preventing or reducing excessive production of bacon. The Board could refuse a licence, if in its view the premises were not required for the production of bacon. In December, 1935, the Board refused thirty-eight applications. In 1936, it reheard a number of cases and eighteen out of twenty-six applications were refused. Four applications for extensions of premises were also refused.

Some marketing schemes did not reach the stage of regulated production and exclusion of new entrants, but proposals to this end were frequently mooted, and as I have argued they are a logical complement of any plan. The Milk Marketing Scheme is complicated by its discriminating price structure, but up to the war it was continually threatened by a flooding of the manufacturing (non-liquid) section of the market. Juggling with the discriminating prices, and various other expedients, including State subsidies, kept the scheme going, but it was frequently suggested that the trade should be confined to existing producers and the Scheme still has that card up its sleeve. The licence system has been applied to herring fisheries, it has been proposed for sugar production, and for growing of fruit, including the humble raspberry. I have said enough to indicate the policy which sends the free-born Englishman cap in hand to a Commissioner for permission to engage in an occupation, with the odds on his being turned down. In the industrial field, first the output, then the sale of coal were regulated, and coal distribution was due for the same treatment if one can judge by the peevish complaint that 'entry into the coal distributive trade is ridiculously easy.' In cotton—but I am not going to venture on that here. I will just note that the spindle levy, which has retrospective effect from the appointed day, is just a modified alternative to the direct exclusion of all new enterprise. There are more ways than one of killing the pig of a new entrant. The North Atlantic Shipping lines were protected from new competition by the refusal of facilities for raising capital. State shipping subsidies were confined to existing enterprises and did not extend to new comers. In iron and steel the British Iron & Steel Federation by devious and obscure ways somehow acquired a veto on new development, as the story of Jarrow can tell. The licensing system for road transport administered by the Traffic Commissioners provides some startling examples of the inglorious mentality induced by restriction schemes. Here is one gem from the Reports: "The Commissioner having elicited from the applicant that he entered the business in order to get a living and not to supply

any public need for additional haulage facilities said : ‘ Previous to your doing this, other people on the spot were doing it and the effect of your doing it is to take it away from other people. There is not the slightest evidence which would justify me in granting a licence in this case.’ ”

Having elicited from the applicant that he entered the business in order to get a living !! This in the land of Hampden, John Pym and the *Manchester Guardian*. Well, as the cathedral verger once declared : “ We can’t have people praying all over the place ! ” The movement for the licensing, and *ipso facto* restriction, of retail outlets was well under way before the war, when meat traders, hairdressers, grocers, motor dealers and other consumer services were formulating demands through their associations for regulated and licensed trading. The agitation has been reinforced by war-time development, and already the fear has been expressed that mistaken sympathy for the returning soldier will encourage him to enter retailing. It may be argued that this form of protection is warranted in a depression and would by successive relaxations become inoperative with returning prosperity. But how it works during a depression can be seen from the agitation conducted in 1933 by the National Federation of Retail Newsagents and the National Union of Newsvendors to secure the licensing of street newsvendors. Local authorities were to work the scheme, and regulations such as the two organisations desired were in fact incorporated in a general purposes Bill which the Glasgow Corporation thought of promoting at that time. A petition to the London County Council argued that control of news vending was desirable in the interests of the public and of the vendors themselves. Street news vending, like costermongering, was an established form of street trading and a regular means of livelihood. But, it was stated, “ growing overcrowding of the industry by casual sellers is rendering it impossible for *bona fide* newsvendors (that is, those engaged in street news vending all the year round) to earn sufficient to maintain a respectable position as a citizen . . . Any person, provided he can obtain a supply of papers, is at liberty to sell them in the street.”

The last sentence reveals the deplorable results of Magna Carta and other ill-considered proclamations. The culprits at that time were the unemployed whose desperate efforts to garner a few pence were not 'to the public advantage.' This is the end result of sectional planning. When each occupation in its turn has obtained its registration and licensing powers, the spare parts left over, the wretched unemployed, are disqualified from earning a few coppers by selling football editions.

No discrimination for reasons which are felt to be irrelevant ! Let us examine two of the basic qualifications which in practice have determined who shall be covered by a plan and who shall be excluded. First there is the date-line qualification, expressed in the appointed day . . . on and after 1st Jan., 1937. What is there relevant in the distinction between the people who were in the trade before that date and people who might wish to enter it afterwards ? There might be some relevancy in a community in which all the people were of the same age. But we live in a world of succeeding generations. Five years after a plan is launched there are potential producers who were at school or college when it started. There is no relevancy about the status quo in the economic system. Secondly there is the argument that while existing facilities are adequate there is no justification for new enterprise in a particular field. The onus is thrown upon applicants for a licence to prove that existing facilities are not adequate. Here is one Traffic Commissioner ruling : " He, the newcomer must discharge the onus of proving that there are persons ready and willing to employ him, and in addition lend evidence sufficient to make out to the satisfaction of the Licensing Authority that the haulage work which he proposes to carry or embark upon, cannot for some reason be done by other operators already engaged in carrying whether by road or rail." Without discussing the relevancy of this test I would just point out how fortunate we are that George Stephenson was not under the onus of proving that the work he proposed to do with the *Rocket* could not for some reason or other be done by the canals or the stage coach.

If there were a case for planning an industry in such a way as involved restriction of output or numbers, then surely the only equitable method of determining the right to produce is, short of drawing lots, to put it up to tender. This is how local authorities at the seaside limit the number of ice-cream vendors and entertainment performers on the sands. I am not sure that the tendering should not extend to the employees in the industry. Many of the sectional plans broached nowadays are a result of an agreement—I will not call it a conspiracy—between the employers' association and the trade union concerned with the industry. If a plan envisages not only a return to capital but also a return to labour above the level which would attract factors from the outside, then the opportunities should be open to all, and the allocation determined, as I suggested, by tender.

What is striking in this matter is the inconsistency between the views of advocates of advanced planning of this type, and their views on human rights. Mr. H. G. Wells is an arch blue-printer of the planning school, and yet his Declaration of Rights contains the following clause : " Subject to the needs of the community a man may engage in any lawful occupation, earning such pay as the contribution that his work makes to the welfare of the community may justify."* I admit that any good lawyer on the strength of the phrase ' subject to the needs of the community' could put over the Hops Scheme, and any other industrial self-government monopoly. I would point out however that an H. G. Wells applying in 1890 to the Literary Commissioners for a licence to write novels, might have come up against the following grounds of objection put forward by counsel expensively briefed by the Literary Guild :

* The latest pronouncement of this kind is the "Philadelphia Charter" which has just been adopted by the International Labour Office conference. ". . . All human beings, irrespective of race, creed, or sex, have a right to pursue both their material well-being and their spiritual development in conditions of freedom and dignity and of economic security and equal opportunity, . . . "

1. He was not in the occupation on 1st January, 1890.
2. Being merely the holder of a new-fangled science degree he was not qualified to pursue a literary career.
3. Since his knowledge of life, and in particular of lower middle-class life, had been obtained very cheaply, there was little doubt that his business would be obtained by price cutting.
4. In view of the continual congestion in the twopenny boxes of second-hand booksellers, the onus was on him to prove that existing facilities for the supply of novels were not adequate.

G. L. SCHWARTZ.

Lancashire

(This poem first appeared in the "Manchester Guardian" on 8th November, 1935. We re-print it as a considerable tract in economics. We especially commend it to those who, having examined the O.P.M. of an industry, are disposed to believe that nothing further remains to be said.—EDITOR.)

Why does nobody write a poem about the cotton trade ?
You'd think the poems would crowd up till they touched,
That big paunchy men on the Chamber would go lyrical all over,
And little clerks who work out consular invoices for Havana, and Antofagasta,
And go nights to the Tech. to learn about Crompton and his mule :
Or was it Arkwright ? Who kept that mule anyway ?
Well, they got to know about it because they mean to get on.
Mean to get on. In Manchester. In cotton. Some pluck, what ?

I remember when I was beginning standing under our mill. It was evening
What a thing ! I was a speck under it. It towered over me
Like a black precipice, cut with square port-holes of light.
Out of the dark hull oozed the smell of warm oil :
In the air was that high-pitched hum every spinner knows :
And I stammered You monster ! You monster !
Tearing the bales to death in the claws of your breaker,
Spinning them back to life in your racing fingers,
Racing, racing, every part of you racing,
Yet balanced, meticulously co-ordinated, plumb in line,
Biting off just what you chew, and chewing all you bite.
Only a white man could invent a monster like you. No other colour could.
Now all the other colours have pinched it,
Rice eaters, grass eaters, smoke eaters. We want meat. .
They say that round thing on the Jap flag is a sun. It's a plate of rice.
Below is written *In hoc signo vinces.*

My great-great-grandfather was a hand-loom weaver.
The yarn was so bad they couldn't use cotton for warp. The warp was linen
There were forty yards to a piece and it took him a week to weave.
At week-end a little mester came,
And took what he'd woven away and gave him some weft and some money
If no little mester came he clemmed.

In a clough below the fell is the wreck of an old, old mill,
Tiny, no bigger than a tennis court. How could they spin in that ?
How could the long procession of ordered ideas march in that match-box ?
The roof's gone, the floors are gone, there's nothing to tell you.
But the shell of the wheelhouse stands, and below the maidenhair that
feathers the cool stone.

In a thick brown stocking of rust the iron axle remains.
I swarmed down the race to know if some old foundryman,
Boulton and Watt perhaps, had cast his name on it.
But if there ever was a name the rust had eaten it :

Axle and bearing had become one flesh, and never will stir again.
The lade was a groove of grass, and I nearly trod on a lark
As she sat her nest in the conduit, the cheeky thing.
No one will ever spin in that valley again :
Sheep you shall find, and moorland grass, and sky,
And a curlew send you his exquisite rippling call.

That was the second stage, and then came steam,
And then came everything else. They kicked the lock off
Pandora's box and turned it upside down.
And they made everything right and everything wrong :
Machines that marched the floor with the measured precision of the planetary
system,
And towns that sprawled in muddles of beastliness :
Had hands tender as a lover's for yarn and hard as Cain's for the children
they enslaved.
Was there a bargain ? They drove it. An ugliness ? They made it.
An obstacle ? They cursed at it, and battered at it, and either solved it or
botched it,
Being neither demigods nor heroes,
But ingenious, hard-working descendants of *homo sapiens*,
Who had the luck to plant their seedlings in kind weather,
Not in the frost or the storm, but when the slow ripening of time, the felicitous
crossings of circumstance
Presented unimagined opportunities,
Which they seized. And prospered. And grew tall.

See that woman weaving in that steam-heated shed ? There's a kid coming.
But the Act says she mustn't go on weaving after Oh, it does, does it ?
And the Act says the humidity mustn't exceed Oh, it does, does it ?
 Mustn't exceed warm tea. She's stood eight hours : is she tired ? Oh boy !
 The kid's just flush with the breast-beam, and from shuttle-box to shuttle-box
 the racing dart flickers by, flickers by :
 Do the tiny ears hear through her the roar of her bread-winning ?
 The warp that shivers and divides, shivers and divides, is Mississippi cotton,
 And drifted on scows on cool November mornings, drifted through the
 somnolent misty opalescence, the far bank a faint pencilled line :
 The piece she is weaving will go through the Great Wall of China and ride on
 a dromedary into Mongolia :
 But she only knows it's making-up to-morrow and she'll miss her cut.
 Race, little dart—*drat it, there's an end broke : leave it while cop end : they'll
 not fine me for that.*

Buyer on 'Change had a satin the Japs are shipping ;
 Thirty-two inches, pure rayon, nice colours, tuppence-farthng a yard.

Why, a dyer here would charge you that for the dyeing only ;
 If you pinched the grey for nothing off a lorry the dyer, I tell you, would charge
 you that. And him losing money.

Then how the hell—

Here, cut that out. They've found how to save the cotton trade :

London chap, he found it. Spent a whole day in Manchester.

Lancashire must reduce her costs and recover the export trade.

Mister Compositor, have you no more brains than to print God's message
 to the worms in those measly italics ? Stuff it up in capitals
**LANCASHIRE MUST REDUCE HER COSTS AND RECOVER THE
 EXPORT TRADE.**

There ! Does the eyesight good. Stand it on the desk where I can see it.

Lancashire must—— Oh, my God.

I know an economist lives in a library and studies trade.

It's the best place. Inside a library you see all trade, and outside you only
 see part, the part that hurts.

*Demand, he said, is satisfied from the cheapest supply. Productive energies
 which no longer conform to this condition should be transferred to
 alternative activities.*

What sheltered lives these long words lead. Never been soaked with sweat or cold with fear. Never been parts of men, like short words.

Productive energies which no longer—that's me and my mill. Are you getting it?

That's Oldham and—No! I won't have it. See here, Professor:

If all the light and heat of a million men is gathered through a burning-glass to one incandescent THIS:

If they did THIS before anybody and better than everybody:

If they spun THIS out of themselves and wove it through themselves and dyed it into themselves,

Till no one in the world could think of THIS without thinking of them;

After all that, do you dare, do you dare suddenly to flip them away,

Puff them off like greenfly off roses, discard them, efface them, expunge them, make a vacuum of them,

Merely because some sweltered Asiatic sells an imitation cheaper?

Demand, he said, is satisfied from the cheapest supply. *Productive energies which no longer*. . . .

Oh, do you mind not saying that again? It's more . . . it's more . . .

What a nice library this is of yours.

The white races seem to me like rich kids sitting round a high table,

Playing with wonderful toys of their own invention.

Clever as angels, the kids: they never stop inventing.

Down below, under the table, are swarms of dark little figures.

Are they dwarfs? Are they gnomes?

If anything falls from the table they snatch it with ravenous eagerness,

And copy it and copy it and copy it,

Murmuring, swarming, like insects, myriads and myriads.

If anything falls it never goes back again.

The cotton trade has fallen off the table.

It will never go back, and yet I keep on thinking

Of little grey mills tucked into meadows, under beechwoods,

The only mill in the village. Meat, drink, father and mother to the whole village. And stopped.

And of Preston. There's many a weaver in Preston can save the life of a sick warp that in any other land would die.

I've heard tell of an old woman there when she had a fine warp and a bad one
 she pieced the ends with her hair.
 And of Oldham, riding up its hill with all its lances in rest, more spires than
 Oxford, and lots of them as smokeless.
 And of Stockport, with its Roman aqueduct ;
 And of Glossop, in its plover's nest of moor.

How can you change the flow of a people's life ? How can you change the
 North ?

Stubborn, conservative, stoical, proud, contemptuous of advice,
 Having marched for a hundred and fifty years in one direction,
 Known of all men, sought of all men, suddenly
 It awakened to a world that no longer sought it as before.
 In the barbarous age the test of the pluck of a bulldog
 Was to hack off its leg and still it wouldn't let go.
 Lancashire's been through that, and has not let go.
 The stubborn millowner, spinning his last ducat down the drain,
 The stubborn millhand sticking it, sticking it,
 How can you change the set of a people's mind ?

Rice eaters, grass eaters, smoke eaters, decent little beggars, I've nothing
 against them.

But I can't go on writing this because I keep seeing a ship.
 Rotten old tramp in the grey dawn sullenly steaming.
 Must be a popular boat : brown with passengers : brown as a skep with bees :
 All men. All wearing brown. Her sides are funnily painted,
 Futurist stuff. What's her name ? RIVER CLYDE. River Clyde ?
 Don't speak that name : it frightens me. What is she doing ?
Lancashire men are abroad and they're making a landing.
 A landing ? There ? Not there ? Oh, Christ, not there ?
They have reduced their cost and gained the export trade.
 What do you mean ? Nothing in the world is worth—Oh God, what have
 you sold them for ?
For nothing.

GODFREY ARMITAGE.

Reviews

Redistribution of Income Through Public Finance in 1937.

By TIBOR BARNA. (Oxford : Clarendon Press, 1945.
Pp. xi.—289.)

In this book Mr. Barna estimates the extent to which incomes were redistributed in 1937 as a result of taxation and expenditure by the Central Government and Local Authorities. In order to arrive at his final conclusions Mr. Barna has to allocate to individuals all income, the incidence of all taxation and the benefits of all expenditure. The allocation to individuals of indivisible expenditure, such as expenditure on defence, is given on the basis of three different assumptions ; first, an allocation in proportion to producers' income ; second, an allocation in proportion to income above the subsistence level, that is progressively in relation to producers' income ; and third, progressively throughout the whole range of incomes. On the first assumption £348 mn. was redistributed from rich to poor (the dividing line being taken by Mr. Barna at an income of £250 a year), on the second assumption £271 mn., and on the third £196 mn. Mr. Barna favours a final figure of £200—£250 mn. In terms of percentage of initial incomes (incomes before taking account of taxes, transfers and benefits from expenditure) the incomes of the poor were increased by 8—14 per cent., and the income of all other classes diminished by 10—18 per cent., according to the assumption taken for the allocation of indivisible benefits. The diminution increased progressively for classes with incomes over £250 a year, reaching 24—59 per cent. for classes with incomes over £10,000.

Any allocation of indivisible benefits must be on quite arbitrary assumptions, and the three allocations made by Mr. Barna by no means exhaust the possible methods of allocation. Many readers will be more interested in the estimates Mr. Barna gives of partial redistribution which excludes altogether the allocation of expenditure on indivisible benefits (estimated at £518 mn.). On the basis of partial redistribution, classes with incomes under £250 a year gained

£76 mn. (made up of a gain of £145 mn. to the classes below £125 a year and a loss of £69 mn. to classes from £125—£250), while all other classes paid £594 mn. more than they received in allocated benefits.

The estimates of gain or loss, both for total and partial redistribution, are given for 26 income groups, starting with classes below £125 a year, at intervals of £25 for incomes from £125—£200, at intervals of £50 for incomes from £200—£300, and so on for widening intervals up to incomes over £100,000 a year.

The initial step in the calculation is to estimate the distribution of incomes before tax. Mr. Barna then proceeds to estimate the incidence of each tax on each income group and to allocate to income groups the benefits from expenditure. In order to make these estimates Mr. Barna has to estimate national output, expenditure and capital for 1937 in a great wealth of detail and many readers will find the main interest of the book in these estimates and in the estimates of the incidence of particular taxes rather than in the final and necessarily broad general conclusions.

There can be no doubt that Mr. Barna has set himself an immense task and that he has brought to it great statistical ingenuity and courage, and a most extensive knowledge of statistical sources, official and unofficial. Unfortunately the basic material with which Mr. Barna has to work is often very poor and the estimates deduced from such material amount to little more than guesses. This is especially true of the allocation of most of the items of public expenditure.

Where so much estimation is involved it is essential, if the reader is not to be misled, that a clear distinction should be drawn between official figures, official estimates and the author's own estimates; that some indication should be given of the margin of error in the estimates and the extent to which such errors vitiate any conclusions that may be drawn from them; and, most important of all, that the final statistical conclusions should not be given in greater detail and to a greater degree of precision than the extent and accuracy of

the basic material will bear. Mr. Barna gives the reader little help on these points. With few exceptions it is impossible, without laborious reference to the original official returns, to tell whether any particular figure is an official figure or Mr. Barna's own estimate. All figures, estimates and conclusions are presented as if they have the same degree of accuracy, and even where there is occasionally some warning of the margins of error in the estimates this is most inappropriately given in a footnote. But most unfortunate of all, the final statistical results are given to a much greater degree of precision than the basic material warrants even on the most generous construction. The distribution of incomes, capital and the incidence of all the main groups of taxes and of the benefits from public expenditure, as well as the final figures of the redistribution of incomes through public finance are given for 26 incomes classes, in the lowest ranges at intervals of £25 a year. Five income classes are given for incomes up to £250 a year. There can be little doubt that the information on which Mr. Barna bases these estimates is much too scanty to warrant figures being given in this degree of detail, and the printing of the figures in neatly laid out tables merely gives them a spurious and misleading air of accuracy. None of the important conclusions would have been lost if Mr. Barna had been satisfied to publish figures only for the seven broader income groups which he uses in the summary tables.

To comment adequately on the methods Mr. Barna uses to arrive at his estimates would involve writing a review on each page of the book, but there is one fundamental point which deserves special attention. In the first chapter Mr. Barna states that in his calculations the *economic family* is taken as the unit and that the redistribution measured is that between economic families classified according to standard of living. The estimate of the initial distribution of income is based on income-tax and surtax statistics and the first distribution derived from these is according to the income of persons assessed for income tax and not of the *economic family*. By some ingenious and hazardous estimation Mr. Barna calculates the average number of persons per income-tax family as 2.57

(i.e., the average number of dependents per person assessed to income tax as 1.57). Assuming that this factor is the same for each of his 25 income classes he obtains the number of persons in each income group by multiplying the number of income tax payers in each group by 2.57; the number of people in the group below £125 and their total income is then obtained by subtracting the number of persons in the classes above £125 a year and their total incomes from the total population and the total national income. This gives a distribution of incomes by *income tax* and not *economic family*. In assessing the incidence of direct taxes the same definition of income distribution is used. But in estimating the incidence of indirect taxation and the benefits from subsidies and many of the items of expenditure Mr. Barna makes great use of information in family budget inquiries which are normally based on the *economic family*. Clearly the incidence of indirect taxation and the benefits from public expenditure will be quite different for the *income tax family* and *economic family*, particularly in the lower ranges of incomes. Mr. Barna makes some, although by no means complete, allowance for this difference in the class below £125 a year, but no allowance is made for classes above that level. This follows, of course, from Mr. Barna's assumption that the average size of income-tax family is exactly the same for every one of his 25 income groups above £125 a year. But can this assumption be accepted on the basis of the evidence as presented by Mr. Barna? Would it not be surprising indeed if further evidence showed, for example, that the average number of dependents for the class £125—£150 a year was the same as that for the class £250—£300 a year? If Mr. Barna's assumption is incorrect his final figures of redistribution for individual classes in the lower income groups cannot be very reliable. This leads one to wonder whether it might not be more profitable, in view of the limitations in existing information, to try to estimate the redistributive effects of public finance for representative families in various income classes instead of trying to estimate the total amount of redistribution for whole income groups. In any case the lack of homogeneity in the lower income

groups, as used in Mr. Barna's calculations, makes it misleading to take £250 a year as the dividing line between "rich" and "poor" or the "upper and middle classes" and the "working classes." The category below £250 a year must have included many independent earners from the "upper and middle classes" and the category over £250 a year some working-class men with large families.

It is a great pity that there is not allied to Mr. Barna's great facility in handling figures some element of caution, and that he does not hold out to the reader a guiding hand to enable him to assess the margins of error in the mass of estimates given in this book. The book would have been enormously improved if Mr. Barna could have invented some simple device which statisticians badly need for colouring figures according to their varying degrees of accuracy. As it is, there is a danger either that the reader will be so impressed by Mr. Barna's facility and ingenuity that he will take every figure in the book as a firm "statistic" or that he will be so terrified by the extent of estimation involved that he will hesitate to accept even the most general of Mr. Barna's conclusions. Either course would be a mistake.

E. DEVONS.

Secrets of Industry. By LEWIS C. ORD. (Allen & Unwin.
Pp. 160. 8s. 6d. net.)

Mr. Ord has had a long and varied experience as an industrial consultant ; he has studied methods of production in several industries in half a dozen countries ; and he now writes a book with an intriguing title. The industrialist will pick up this book and expect a revelation of hitherto unpublished facts about managerial technique and policy ; he will find for the most part a collection of impressions, few of which are new and all of which are subordinated to the theme that mass production is a panacea. The economist will hope at least for a reasoned account of relative efficiency supported by

some of the mass of statistical data to which Mr. Ord must have had access, yet there is an irritating lack of precision not only in the comparison of efficiency but in the very definition of efficiency. As for statistics, there is only one table of figures in the whole book. Various statistical investigations are mentioned, but their results are summarised in the form of a few vague generalisations. Perhaps the book is intended for the general reader who is anxious for expert guidance through the maze of popular hopes and fears about our competitive ability. The expert will lead him in and out and round about and leave him still bewildered.

The first half of the book is a eulogy of Henry Ford, American mass production and Big Business (such is the apotheosis that the capital B is used throughout). The second half is largely a lament for the apparent failure of mass production methods in the British industries of which the writer has had experience.

Mr. Ord begins by giving some interesting details about the application of mass production technique to the building of railway freight cars and motor cars in America, and goes on to claim that mass production is the key to efficiency in all industries. The basis of this claim is obscure at first, for the author states repeatedly that successful mass production is associated with high wage rates, intensive mechanisation and widespread advertising campaigns, all of which would appear to increase costs. It emerges, however, that there will be compensating economies provided (*a*) that the volume of output is large enough, (*b*) that scientific management eliminates as much "non-productive" work as possible, and (*c*) that there is such harmony between employers and employees that both groups concentrate all their energies on increasing output.

With regard to the first of these, it is an elementary concept that the scale of production is limited by the extent of the market, and Mr. Ord rightly points out that volume and standardisation are essential for mass production. The technique has been successful in America, he says, because of the willingness of the consumer to accept a standardised product. The British consumer demands variety, calling for

frequent changes and consequent diseconomies in production. If Mr. Ord means that American consumers consciously accept standardised goods as the price of mass production, all credit is due to them. If not (and the necessity for large-scale advertising suggests not), they show a surprising docility and gullibility. Would it not be truer to say that the American home market, by its sheer size, and because there is a large body of consumers who demand cheap short-lived consumer goods, provides the incentive for mass production methods, whereas the British market lacks these characteristics?

On the question of "non-productive" work Mr. Ord makes some good points, but the term is not clearly defined. At one stage he classes as "non-productive" all the labour of fetching and carrying, inspection and supervision that could be reduced by more scientific organisation. At another "non-productive" work means the paper work which tends to develop as businesses expand and the problems of centralisation become more pressing. (It is amusing to read that he attaches some of the blame to American office machinery and its accompanying "paper controls.") These are important and interesting subjects, the more so when the writer claims that for efficient mass production not more than 20-25 per cent. of the total labour force in the factory should be "non-productive." Similar claims are made regarding the ratio of overhead costs to prime costs in units of varying efficiency. The reader cries out for some statistics, some definitions of the scope of the writer's statements, some idea of the source and accuracy of his information, but no such details are given.

Mr. Ord makes some convincing remarks about the attitude of the American worker. He says that maximum output should be, and usually is the main goal of employer and employee alike in American industry; that there is a realisation of the mutual advantage of increased efficiency and a willingness to adopt new methods and scrap old ones which is not found in Britain, France or Germany.

Comparisons of efficiency as between firms, industries and countries are now a popular pastime, and such phrases as output per head, production per man per hour, and man-hours

per pound weight have almost become catchwords as measures of efficiency. Mr. Ord could have done a great service by pointing out the limitations of these devices ; unfortunately he himself uses the terms loosely. On page 63 efficiency is "the highest output per square yard of floor area and per unit of capital invested." Elsewhere it is measured by the proportion of "non-productive" to "productive" labour, or by "working pace," a new term that apparently means output per man-hour. All these statements are part of the truth, but instead of proclaiming the whole truth by saying that efficiency consists in giving the consumer what he wants at the price he is prepared to pay, Mr. Ord obscures the fact by making mass production, and nothing else, the criterion of efficiency. It seems to be outside his experience that where the consumer does not want a mass-produced article, efficiency does not come with mass production.

There are many home-truths scattered about this book. Chapters IX and XIII especially have some shrewd observations on the value of competition for increasing efficiency and the stultifying effect of protective and restrictive schemes. But it is hard work picking out the solid trees from the hollow ones in this thick jungle. Even allowing for the handsome apologia in Chapter I, the reader cannot escape the impression that the book was dictated during one of the author's long journeys in his mass-produced railway carriages and that, expert though he is in organising production, his book shows a surprising lack of systematic arrangement, logical argument and sub-editing.

W. HAGENBUCH.

Industrial Record, 1919-39 (CADBURY BROS. LTD., BOURNVILLE AND PITMAN. 1945. 8s. 6d. net).

This account of the activities of an efficient and go-ahead British business between the two wars could not have appeared at a better time. It should be made compulsory reading for students of economics and industrial administration, Government departments and depressed business men.

Chapter I deals with organisation and management. Cadbury Bros. Ltd. is still largely a family firm. Only one of the directors is not a Cadbury ; each of them controls a "function," and is also chairman of a departmental policy committee of eight to ten members representing other interested Directors and officials. One example of departmental co-operation may be quoted. "Before 1914 the introduction of new lines and designs was regarded as almost exclusively a matter for the Sales Department." To-day, owing to increased mechanisation "a slight variation . . . will almost certainly upset the rhythm of production unless . . . carefully considered from the technical point of view." This involves "close collaboration between the Sales and Production Departments . . . at all stages" (p. 8). Compare the following¹:

"From about 1925 onwards the function of selling began to take on increased importance . . . much of the responsibility for the initial design of product passed to the Sales Function . . . the Design Function under Works control being left mainly with the responsibility for translating sales specifications . . . into 'Works' language." Not perhaps so much of a contrast as at first appears. One firm was moving towards standardisation of product (the book under review is mildly critical of the consumer for demanding so much variety and hopes that the war will have cured him), the other directing more attention to the vagaries of the "user." It is an issue worth remembering as social mechanisms grow complex and the Whitehall works managers take over.

Still, we might pay something in variety for cheapness, if associated with a high rate of technical progress, and Cadburys have not allowed the "rhythm of production" to obstruct large scale revision of plans. "In general . . . practice has been to re-build rather than adapt" (p. 20). Profits should be ploughed back "on a really generous scale," and the report criticises the Inland Revenue Department for the inadequate regard paid to new investment in general and obsolescence in particular. Vertical integration is also regarded as dangerous

¹ By a director of the Renold and Coventry Chain Co. Ltd. of Manchester. ("The Development of Scientific Management," British Management Council. 1938. p. 84.)

to progress. "There is truth in the adage that the shoemaker should stick to his last" (p. 25). The firm has on the contrary tended to "disintegrate," handing over building, electricity generation, transport, printing and the manufacture of containers to outsiders. Some printing and building is done inside the firm, as a technical and cost-check (one hopes all-or-nothing nationalisers will read this testimony). An up-to-date sawmill was scrapped in favour of imported cut wood-box parts, which further justified itself when card and fiberite containers replaced wood. For milk collection, Cadburys have employed the small local haulier, with low overheads and a "general" trade.

The firm's economic history (dealt with in Chapters II and III) falls roughly into three periods, 1920-25, 1925-30, 1930-39. In the first, raw material costs fell by over 50 per cent., prices were adjusted proportionately¹, sales and employment rose rapidly. The middle period was one of price conservatism. Raw material costs stopped falling, but mechanisation reduced factory costs (output per head doubled between 1927 and 1934) and displaced over a quarter of the labour-force. In spite of heavy advertising, sales remained static.

Raw material costs fell again in the depression, which "led the Firm to review its price policy." Prices were cut by one-third between 1930 and 1934. Sales reacted sharply even before 1932, sagged a little in 1933, and then rose rapidly. Advertising-cuts and product-standardisation helped to keep prices down during the upswing, and employment slowly returned to the pre-mechanisation level.

Over the whole period, in spite of an unchanged distributive margin, sales of milk chocolate increased by nearly three and prices fell by more than two-thirds. The two-ounce "two-penny block" had replaced the meagre fractional-ounce "twopenny bar" of the early twenties.

The figures given are mostly in index number-form, and many of the diagrams don't yield precise answers to our

¹ Milk chocolate prices only are quoted but other price changes were presumably comparable.

questions. We also lack knowledge of what the firm's competitors were doing during this time (perhaps Rowntree's and Fry's will oblige). But certain things emerge:—

- (1) The high price paid in technological unemployment for a policy of "rationalisation" which failed to pass its benefits straight to the consumer. Cadburys did their best to prevent distress by paying additional benefits, speeding up outside construction projects, and spreading work. But they did not allow for:—
- (2) The high sales-resistance to advertising when unaccompanied by price-reductions. It may be that a complete picture of the industry during the late twenties would yield some object lessons in oligopolistic stalemate. No doubt a (surprising) ignorance of demand conditions counted for something.

The other factor in the situation was a high and rigid distributive margin. This, combined with almost unrestricted entry, has led to nearly half the shops in the United Kingdom selling confectionery. The Cadbury estimate in Chapter IV (on "Distribution") of 250,000 selling-points in 1929 may be compared with the "*Economist's*" figure (1931) of 537,500 shops in Great Britain (330,000 establishments applied for licences to sell confectionery at the beginning of the war). Seventy-nine per cent. of the selling-points were grocers, pastry-cooks, cafes and general dealers.¹ Half of them were aesthetically unattractive shops with low turn-overs and there was considerable mal-distribution.

The 33½ per cent margin, the large bulk of which goes to the retailer, puts confectionery in a class with products like furniture and footwear, which have far lower rates of stock-turn and heavier requirements in salesmanship. Cadburys are now thoroughly converted to low prices and anxious for this margin to be cut. But the only practical proposal made is to eliminate the inefficient retailer by restricting entry. Licensing is recognised as a poor solution—"the long-term problem is essentially one for the town-planning

¹ As retail margins for most foodstuffs are less than twenty per cent. the average margin for such shops was considerably lower than for the specialist confectioner.

authorities" (p. 57). Birmingham's proposal to reduce total numbers in re-planned slum areas to 1 per 107 persons (which if followed generally would halve the number of shops in a good many British towns) is quoted with approval.

How this is going to reduce retail margins or assist the consumer is not made clear. Aesthetically the clearing of slum-shops is as desirable as the clearing of slums, but in democratic countries slums are not cleared for aesthetic reasons without offering alternative accommodation. It seems possible that Cadburys adhere to the now fashionable doctrine of the irrational consumer, and hope to break up some of these horribly imperfect markets based on goodwill, convenience and a subsistence living.

The straightforward way of cutting retail margins is to cut them and the State should, if necessary, help the price-leader by forcibly bringing other manufacturers into line. If that does not get rid of the "subsistence" retailer, it is perhaps because he is a product of deficiencies and maladjustments elsewhere in the economic system, and will disappear with these. The Government could also give those eight million job-seekers with £300 capital (p. 56) a thorough warning, and is already preparing to follow up the pioneer work of private firms by holding a regular Census of Distribution. But we should beware of "town-planning" solutions to economic problems, which may leave the house-wife trekking across the Green Belt to buy what she wants at the same old prices.

Chapters V and VI deal with "Recruitment, Education and Promotion" and "Welfare and Social Security." The firm ran a Day Continuation School on lines suggested by the defunct clauses of the Fisher Education Act. A welfare scheme paid pensions, family allowances (5s. per child after the second), "short time" pay and sick benefit at a weekly cost to the worker of 6s. 6d. (including payments to the State), and 8s. to the firm. Chapter VII deals with Exports and Overseas Factories.

The book is refreshingly free from the euphemism customary in this type of publication.

R. N. SPANN.

Freedom Under Planning. By BARBARA WOOTTON. (Geo. Allen & Unwin, Ltd. Pp. 163.)

Mrs. Wootton discusses economic and social organisation with such detachment and open-mindedness, and she admits the dangers and complexities of comprehensive planning with such breath-taking candour that one puts down this book hardly believing that, after all, the author has missed the truth. Some of her quiet but deadly blows put the case for a free economy much more effectively than it is usually presented by its own champions. "The problem of planning for freedom resolves itself into the problem of determinate planning for indeterminate cultural ends." . . . "To determine the complete schedule of economic preferences of (say) 30 million individuals . . . is in practice . . . insoluble." . . . "The observed behaviour of human beings in positions of power hardly justifies an easy assumption that they will automatically act, according to the best of their ability and understanding 'on behalf of all and for the benefit of all'" . . . "The tendency to distinguish between what may be called personal and impersonal restrictions . . . has to be brought into the picture . . . as additional ground for regarding legal prohibitions as likely to cause frustrations more grievous than those due to economic necessity." . . . "It is important not to slip into the prevalent and dangerous error of identifying the common good with the social objectives of one's own particular sect or party and of ascribing the rejection of these by others as necessarily due to their stupid or selfish disregard of general welfare." . . . "Freedom is in danger when people begin to ask what you want it for." This is only a small selection of the comments in this book which will warm the heart of the liberal-minded.

II.

Having given up what would normally be regarded as her queen and bishops in the game, Mrs. Wootton, however, proceeds to put up a novel and most prickly defence with her pawns. She begins with the admission that it is impossible to determine, from the centre, the ideal pattern of production for

any large community. There are too many variables in consumers' preferences. This, however, does not lead her to despair. For, she argues, no human decision ever carries with it a guarantee that the decision is correct. "The most happily married man cannot be sure that there is not somewhere in the world a woman with whom he would not have lived in even greater happiness than with his present spouse." This I submit evades the point. In the nature of things human judgment is fallible, and decisions have always to be made in the absence of some of the relevant facts. But it does not follow that we should, therefore, be indifferent to the social framework in which these decisions are made. One framework might be more likely to give a higher proportion of right decisions than another. A man may choose his own wife, or the State may choose her for him, or he may draw her in a lottery : no method guarantees that he will get the ideal wife. The presumption, however, is strongly in favour of the first method. Similarly, I may choose my own kind of bread or my own books, or they may be chosen for me by a civil servant or a Minister of State. It is possible that, after the event, I might be better satisfied with the results of the latter system than with those of the former. But is Mrs. Wootton prepared to deny that the overwhelming likelihood is that the former method will more frequently give me the results I am looking for ?

Mrs. Wootton's admission, however, is a very important one. So long as economic planners are engaged in criticizing the free economy they appear before the public as a band of brothers all seeking the same ends. In fact, there are probably as many conflicting plans as there are planners. But it has in the past usually been assumed that at least each planner knew where he wants to go. Apparently, however, the essential confusion of a planned economy is to be accentuated by the existence of another group of planners who are racked by the knowledge that they have no means of determining where they should go, and are, therefore, torn by doubts as to where they are to go.

III.

Mrs. Wootton next confesses that in any society which claims to provide cultural and civil freedoms the cultural ends must necessarily be indeterminate. "The problem of planning for freedom thus resolves itself into the problem of determinate planning for indeterminate cultural ends." Put in this way most people would imagine that the planner is up against a blank wall. Mrs. Wootton argues, however, that the problem is not insoluble because the State "must know where to stop," and she gives two illustrations of what she means by this. The State might plan the building of lecture-halls, but these might be used by persons of all views. The same point is made in the remark that it is possible "to co-ordinate the time-tables of the different railway lines without controlling the topics of conversation inside the carriages."

It would be easy to provide illustrations in the contrary sense where State planning involves censorship or otherwise inhibits free expression of opinion. If the State controls international investment it is difficult to see how this could be done effectively without censorship of the post. If Mrs. Wootton has had any detailed experience of the working of wartime controls she will know of the hundred and one small ways in which the petty bureaucrats can make life difficult for those who are not discreet enough in their criticisms of the way things are being run. "Victimisation" by employers is a common enough complaint under a system of free enterprise. But at least the victimised have the opportunity of getting a job elsewhere. Why should victimisation of the outspoken by petty bureaucrats, against whom appeal would normally be a prolonged and arduous process, be any less likely? Incidentally, the co-ordination of railway time-tables is not State planning; it is done to perfection under private enterprise.

These illustrations prove nothing. The important point is that the State, with the best will in the world, can never be fully enough acquainted with the million and one forms of cultural activity to know where to stop. Comprehensive economic planning involves not merely a decision what to make but, also, by implication what not to make. How can

the State anticipate the possible reactions of its restriction of output of any commodity upon the million and one forms which cultural activities take? Can it, with the best will in the world, avoid damage all round any more than can a benevolent mastodon trampling through an anthill? And how are the dispossessed or the aggrieved to make their troubles known? By shouting loud or by bringing political pressure to bear? Can cultural liberty be maintained by listening to the voluble or the powerful? It is no answer to point out that the comprehensive planning in Russia has at different times given different degrees of cultural freedom. This merely proves that comprehensive planning is quite consistent with varying degrees of human slavery. When one further takes into account the fact that there is an inevitable human tendency to attach more importance to one's own ideas than to those of a disputant, that under planning the final decisions in the distribution of economic resources would rest with Ministers who are as frail as any of us and who are made more morbidly sensitive to criticism by their instinct of political self-preservation, it is crying for the moon to expect that the constantly changing pattern of cultural activity and civil liberty could develop as freely in a planned as in a free economy.¹ Mrs. Wootton is extremely anxious that we should draw no conclusions on this point from the experience of Soviet Russia, since Russia has never tried to combine civil liberty with economic planning. But is it not of the utmost significance that in that country, which has experimented with practically every form of social institution (not excluding private enterprise when things got bad enough), the one danger they have never dared to risk is the establishment of widespread civil liberties?

IV.

Mrs. Wootton next considers the freedom of the consumer. Assuming that a given group of goods have actually been produced, she agrees that people should be allowed to spend

¹In her preface Mrs. Wootton complains about the book "famine." Is she satisfied that in the allocation of national resources by the State the decision about the number of books which were to be printed showed a due regard for cultural activities?

their money on them as they wish, with prices rising or falling to adjust the given supply to demand. No planning here and no restriction of freedom.¹

She then turns to a much more important aspect of the sovereignty of the consumer: how far should the consumer be free, through the price system and the exercising of preferences, to pass back signals to the producer as to what is really required so that the producer may adjust his activities to conform with consumers' needs? Mrs. Wootton denies the case for this "consumer sovereignty" for a number of familiar reasons, all of which, I submit, are inadequate.

First, she declares that there are certain "social" costs which, if taken into account, make nonsense of the decisions arrived at by private producers who consider only "private" costs. Every one admits the existence of these social costs. Most people, I suspect, are rather tired of hearing one group of planners declaring it a crime against civilisation that, due to a change in the location of industry, houses in the old area are rendered useless and new houses have to be built elsewhere, whilst another group of planners proclaim that it is a crime against civilisation that the unsatisfactory houses in the old area are not pulled down and more modern houses rebuilt on the spot. But the more energetically the planners push the case for taking social costs into account, the less inclined they are to tell us how important, relatively or absolutely, these social costs are. I suspect that they are relatively unimportant and that their exaggeration by the opponents of a free economy is pushing us dangerously near to the point at which the tail

¹She does suggest, however, that we should add certain commodities and services to the list for unrestricted free distribution. This, however, would not only endanger the economy in the use of resources, it would make for great inequities. If you supply electricity for nothing, factories and houses would get built in the places where it would be most difficult to supply power. If you supply bus travel for nothing those who live near bus routes or have ample leisure for riding about on buses will use national resources which other people will have to pay for. Mrs. Wootton says "the time may come when it will seem as absurd to pay a fare on a bus as it would to put a penny in a slot meter every time you use your private lavatory." Quite right, but only so long as you have bought the bus as you have presumably bought your private lavatory. If you want free services of this kind in a free economy you buy a motor car.

is going to wag the dog. In any case no one has ever yet given us an idea of how the State would take these social costs into account. This task is much more difficult than the would-be social accountants imagine. For example, smoke in a city is partly caused by the insistence on the part of the householder that he must have an open fire and the aesthetic delight of flames and curling smoke. The cost of smoke which falls upon the householder is a gross cost, the social accountant would have to turn it into net cost by estimating the countervailing value of the open fire to each householder. It is possible, without disturbing the framework of a free economy, for the State to make rough allowances for social costs not to be improved upon by comprehensive planning. If Mrs. Wootton insists upon damning a free economy for its failure to distribute social costs with ideal nicety, then she must be prepared to tell us exactly what logical principles would be followed for distributing them in a planned economy.

Second, she asserts that a free price system only works perfectly if there is free competition and that, in fact, no regime of perfect competition exists or has ever existed. This is another case where the planner puts on the mantle of the purist when criticising the free economy whilst taking up the bluff attitude that "something less than the best" must serve when examining his own proposed scheme of things. Of course there has never been an actual economic system perfectly congruent with the theoretical system of free competition. But there have been, and there are, systems which approximate closely enough to it to give most of the manifold advantages of free competition. I instance the British economic system at the beginning of this century and the American system to-day.

Mrs. Wootton believes that we in this country cannot re-establish a sufficiently wide measure of free competition—the monopolies have become too deeply embedded. This argument has always puzzled me, since it appears to run so completely contrary to facts. For instance, she places no faith in "trust-busting," because this method has not been very "encouraging" in America. What is the evidence for this?

How can one explain the fact that in the American industrial arena powerful and ruthless as are the operating economic forces, a very wide measure of competition remains unless one attributes a great measure of success to American anti-trust legislation? She suggests that large-scale operation in industry inevitably makes for monopoly. Yet it has recently been shown¹ that four-fifths of the firms in this country employ less than 100 workers. She points to the growth, between the wars, of controlled markets in Great Britain. But this was merely the outcome of deliberate State attempts to create monopolies: the depressing wreckage of half-baked planning by Labour and Conservative Governments alike. Bigamy would doubtless become very common if encouraged by the State. This would be no argument for sweeping away the marriage tie or for assuming that widespread bigamy is inevitable. Similarly the widespread monopoly in this country is no proof of its inevitability if the State will only exercise the appropriate restraining influences.

In fact, once fair codes of competition have been established—as they have been established by the Federal Trade Commission of America—the monopolies will almost certainly go under. For the range of competition gradually widens and the power of monopoly gradually dwindles in two ways. The demand for those goods which do not constitute the elementary needs is more elastic than for others. The wider the margin of the national income available for luxuries the greater the proportion of manufacturing industry which cannot escape from the controlling influence of competition. We must have bread. But if the price of chocolate goes too high then we will switch over to other confections, and if they in turn become monopolised we will smoke more cigarettes or go to the cinema more often instead of eating sweets. Further, nearly every technical change widens the field of competition. We can now build houses with brick, cement, wood, steel, aluminium or plastics. We can travel to work by foot, by bicycle, by private car, by bus or train. We can warm our houses with coal, with

¹See Leak & Maizels, *Royal Statistical Society*, February 20th, 1945.

gas, with electricity, with fuel oil. The laboratory will always threaten the monopolist, provided the State does not buttress monopolies. At this point Mrs. Wootton once again throws up a smoke cloud of what, I believe, is false analogy. She concedes that if we cannot get, through competition, a system for meeting consumers' preferences she concedes that we cannot get it in any other way. We can "only fall back on the much more crude and clumsy apparatus of general judgments." . . .

"Just as everybody knows the difference between a happily married couple and an unhappily married couple . . . so, with common sense, good judgment and good social institutions we shall know the difference between a community which is reasonably contented with its economic arrangements and which is not." What sort of a society would emerge if we tried to run it by some coalescence of as many different views about planning as there are to the question : Is marriage a failure ? And what a contrast there is between Mrs. Wootton's bedraggled, groping, fumbling planned economy and the picture which is so often painted for us of a bright, streamlined plan powerfully pulsing its way towards ends which all approve.

This chapter ends with a final *volte-face*. Consumer sovereignty, after all, does not matter because "it is questionable whether this is a freedom which people really value highly. . . . Liberty in this sense is a highly sophisticated concept." If this is so, why have people grumbled about shortages in wartime ? Why do the Russians go to extremes to prevent their people from seeing the luxury goods produced in other countries? Why do people ever bother to have made-to-measure clothes or furniture ? Why do producers find it of the greatest value to insist in their advertising that they are there to serve the consumer ? Why are the vast majority of people sullenly conscious that they get better treatment in a private shop than they do in a Post Office or an Employment Exchange ? Liberty in any form is indeed a highly sophisticated concept. Yet it is one of the wonders of the world that common people in the last decade have, in many countries, hung on to it whilst their intellectual superiors were trying to sell the pass.

V.

In the shortest chapter in her book Mrs. Wootton points out, what is now generally accepted, that freedom to save is inconsistent with full employment unless the State intervenes to maintain national expenditure at the appropriate level. On this occasion she lands a blow for the first time (and I think the last) upon Professor Hayek for in his masterly *Road to Serfdom* he does not pay sufficient attention to this point. This is a large subject which cannot properly be dealt with here, and on which much important work is now appearing. It must suffice for me to say that I believe that planning is essential for the maintenance of full employment, and that this planning can take the form of centralised financial devices, non-discriminating in character, which will enable us to maintain national expenditure without disturbing the framework of private enterprise, without interfering with consumers' or producers' preferences and without detailed interference by the State in day-to-day operation of industry. In brief a "neutral" system of planning for full employment. After all there is, tucked away in an obscure corner of the White Paper on Employment Policy, the following paragraph :—

"It might well become a matter for consideration whether in prosperous times rather more taxation should be raised than was necessary for the budget requirements of the year and that excess treated as a credit repayable to the taxpayers in bad times."

And no one who has read Mr. Lerner on "*Functional Finance*" or Professor Polanyi on "*Full Employment and Free Trade*" can fail to be impressed by the possibilities that in maintaining full employment by central financial devices we have the ideal form of planning: a task which must be carried out, a task which only the State can perform and a task which the State can perform without throwing the baby away with the bath water.

VI.

The subsequent three chapters of this book are devoted to the vital question of the freedom of the producer. Mrs.

Wootton has much that is subtle and sometimes dangerous¹ to say of the distinctions between the legal and the economic restrictions upon choice of employment and between the right to refuse a job and the right to enter a job. But she emerges as a good liberal from the labyrinth by concluding that a civilised society must observe the principle that "he that will not work shall eat sufficiently and without dishonour; but he that is willing to work shall at all times, whether actually working or not, enjoy greater abundance."

She poses the fundamental dilemma quite starkly. If you have a production plan you must have some method of getting the right number of people in the right jobs to carry through the plan. The right way to do this is to vary wages so that workers move about in sufficient numbers to produce the right distribution of labour. Under existing arrangements Trade Unions insist upon collective bargaining—each Trade Union with the appropriate group of employers. This kind of piece-meal arrangement will not produce the over-all wage plan required. Therefore you must get rid of the freedom of collective bargaining. "All the familiar methods of adjusting wages are quite inappropriate to the demands of economic planning."

Now whether this suggestion will please the Trade Unions does not seem to me to matter very much. If this were the only thing which stood between us and successful planning I do not see why Trade Unions should not be dragooned as remorselessly as Mrs. Wootton is prepared to dragoon employers. And doubtless the Trade Unions, in due course, will let us have their comments on Mrs. Wootton's delicate euphemism that the Unions "should be frankly invited to co-operate in their own metamorphosis."

It is, however, important to ask what is to be put in the place of collective bargaining. How is the wage plan to be

¹Dangerous because I suspect that she believes that to prevent someone from doing work he wants to do is relatively innocuous. In fact, of course, such action by the State is the very essence of a slave economy. It may not seem very dangerous for the State to say that it will not allow any more men to go into coalmining. But what happens to cultural freedom if the State happens to say that there is too much of our national energy going into writing on the subject of planning and prevents me (or even Mrs. Wootton) from engaging in this sort of work even if we are prepared to do it for nothing?

evolved ? Mrs. Wootton comes down in favour of wage fixation by public authorities. I cannot see, however, that this gets her out of the impasse. For as she herself so honestly states, the past experience of wage arbitration does not suggest that arbitrators follow any general economic principles. "The general effect of arbitration and statutory wage fixing is heavily conservative." Everybody knows that an arbitrator takes the Trade Union demands and the employers' demands and fixes his wage at some point between them without, if he is wise, giving reasons for his final decision. When, for example, did an arbitrator last fix a wage lower than either the Trade Union was asking or the employers were prepared to concede ? And yet, for the purpose of her plan this might well be necessary in numerous cases. The planners must not try to solve their insoluble problems by throwing them on to some luckless arbitrator.

Another very important point of principle emerges here. Workers are to be moved to the right jobs by manipulating wages. Now this movement may go on very slowly and with much friction. This does not matter so much in a free economy ; there is enough room at the joints to allow for it. In a system of planned production, however, it would be quite catastrophic. You may have planned your output of steel to meet the needs of your engineering industry. The engineering industry is also planned with sufficient machine tools and labour to meet its plan. But suppose that the arbitrators make a mistake in determining what wage will be sufficient to bring the required number of workers into the iron and steel industry. There will be a shortage of steel, and your engineering capital and labour will be lying idle. The dislocation which would arise as the arbitrators blindly fumble about for appropriate wage levels would make the "chaos" of free competition look like an orderly tea-party.

VII.

Mrs. Wootton finds it possible to deal with freedom for the business man in a much more downright fashion. The freedom for this kind of enterprise she considers relatively unimportant,

partly because those who work on their own account are relatively few in number, partly because this freedom had been much restricted before the war. Might enterprise flag if the business man is too harshly treated? It might. But it can, according to Mrs. Wootton, always be kept up to pitch by three techniques: Government orders for civilian goods *a la* Beveridge, licensing of firms and the production of State "utility" goods. Not one word in all this of the overwhelming role of innovation in economic progress, of the importance of risk taking, of the kind of environment in which risks will be taken freely. I am frankly left speechless by this chapter except to express the hope that if we ever get a planned economy after Mrs. Wootton's heart the Government will place orders for all books to be written, that Mrs. Wootton will get a license for one book every ten years, and that it will be ordained that it must be written strictly according to a pattern available for inspection at the Ministry of Culture. If she finds this idea revolting let her remember that it is what she suggests for every little man (or even every big man) who wants to serve his customers by baking bread, or selling cigarettes, or weaving cotton cloth or running an air-line.

Yet, although the hundreds of thousands of independent operators are, under planning to be hounded and cabined in this way, Mrs. Wootton on the very next page can say "the values that matter are happiness, freedom, security and the fulfilment of individual personalities in harmony with one another."

VIII.

Mrs. Wootton finally turns to the relation between planning and political freedom. The difficulty here is well recognised. If the present Government, for instance, nationalizes the coal mines, this, at least for a time, will cause much temporary dislocation and upset. If after the end of five years another Government comes into power it may consider its duty to denationalize the coalmining industry. More temporary upset and loss of efficiency. Whilst this titanic contest continues the industry may disappear completely and the consumer may be

shorn of all his rights.¹ Planning inevitably involves the possibility of economic disruption unless, of course, one is prepared to dispense with political freedom.

She suggests several ways of escape from this dilemma—all of them, in my opinion, complete cul-de-sacs.

First she argues that if we put industries into the hands of permanent "Boards" the necessary continuity will be guaranteed. This seems to me a council of complete despair.

- (a) If successive Governments really disagree then there is no reason why Boards should not come and go much as housing subsidies between the wars.
- (b) Either these Boards are largely independent of Government, in which case central planning really disappears, or they are subject to a Government Department, in which case a change of Government may mean a violent change of policy.
- (c) The more numerous the Boards the more likely they are to clash in practice and produce the kind of chaos associated with monopolistic capitalism. Thus the Electricity Commissioners or the Central Electricity Board may follow a policy of price discrimination in order to force the consumption of electricity without regard for the social costs embodied in plant for producing gas. The Milk Marketing Board might, at the public expense, engage in widespread advertising to encourage the consumption of milk, the Meat Marketing Board to increase the consumption of meat, the Central Electricity Board to increase the consumption of electricity—all at the same time as the nationally sponsored Savings Movement is encouraging us to save !

¹The illustration which Mrs. Wootton uses is most unfortunately chosen. She points to the violent discontinuities between the wars in the building of state-assisted houses due to the changing policies of successive Governments. If she, however, will examine the figures for non-state-assisted houses built by private enterprise in the same period she will see that there is a remarkably steady increase in production year by year to a well-maintained level. It was the free sector of the economy which, providentially, gave us a large measure of stability in this field.

- (d) The more numerous are these Boards the more the final central authority will become loaded up with insoluble problems of conflicting interests and the more slowly will any decisions at all be made. For example, the siting of our electricity generating stations has recently produced the most comic interludes in which attempts at scientific planning have degenerated into public bear-gardens.¹

Second, Mrs. Wootton urges that we must develop the social techniques for *discovering* what we are all agreed about so that at least that part of our social problem can be settled once and for all. Now everyone will have much sympathy with this plea, and she has much that is wise to say on this subject. But if I may say so without intending to give offence, it is at just this point that the fundamental arrogance of the planner pops out. When we have improved these techniques it does not follow that this will lead to more planning. It may well then happen that we shall discover that the general opinion is that we ought to have less planning. It seems to me unfair, for instance, to say of Professor Hayek that he shows "an utterly sceptical attitude as to the common good." I can leave Professor Hayek to defend himself, but I am quite sure that he is quite positive in his attitude to the common good : it is a condition which is most likely to arise where the State confines itself to the simple duties of creating the framework for economic life within which producers and consumers can operate with freedom. And Mrs. Wootton must not assume that because we are all agreed on the necessity of food, work and a home for every citizen that she has taken the argument any further. It is precisely because I believe that that I personally am most dubious of a comprehensive plan.

It is, after all, the planners who wish to break the continuity of the economic system by clamping down on it a new administrative machine which cannot easily be changed. They

¹ Little wonder that Mr. Hobson, Chairman of the Central Electricity Board, should grumble in Manchester on December 6th, 1945 : "To-day there seems to be tendency for perhaps too many different planning authorities, and they are planning our future from different points of view."

cannot complain if others of different mind claim the like powers. And they cannot deny these except by destroying political liberty.

IX.

Mrs. Wootton is in error when she finally reaches the conclusion that "a happy and fruitful marriage between freedom and planning can be arranged." I suggest that the error is due to one fundamental mistake. She has chosen to examine freedom in relation to a planned economic system which is "at rest." Most things at rest, even tigers and unstable aircraft, look relatively harmless. But something must drive her planned economy to work and then I submit the trouble will begin. All comprehensively planned economies in the past have ultimately been forced to use two incentives which in themselves constitute a denial of individual freedom, the secret police and the policy of "liquidation." I do not think we in this country would ever get so far as that. I think our fundamental common sense would lead us to wake up some morning and liquidate the planning instead. But I think we might easily go far along the road of setting one class in hatred against another and of breeding intolerance and the sadistic cruelties which arise when men are attempting to solve problems which go beyond the wit of man.

Here are some simple illustrations. Nearly every consumer in Great Britain these days is a criminal in the sense that, in minor or major ways, he deliberately takes advantage of the black market. This disturbing condition is due to the fact that we now, in general, refuse to believe that the mass of controls over our persons and our spending are necessary or wise. Recognising our law-breaking, we begin to hate the well-meaning bureaucrats who have to administer the rules; the bureaucrats in turn hate those who make their task of enforcement more difficult. Before the war the Government sponsored schemes for the regulation of the market in many industries such as cotton and coal. Many firms resisted the introduction of these schemes. Those firms came to be regarded almost as public enemies, they were openly described as blacklegs, although many of them were among the most efficient firms in

the industry. The Government frequently insisted that such industries must "speak with one voice," i.e., by hook or by crook the recalcitrant firms should be seduced or bludgeoned into silence.

More generally, a comprehensively planned economy will inevitably throw vast and, as I believe, insoluble problems upon the central administration. The "in" baskets of the civil servants will pile up. Now the more conscientious and scrupulous a civil servant is, the greater the damage if he finds he cannot empty his "in" trays. For he will inevitably look around, as all good administrators do, for ways of simplifying his problems. All small firms will be looked upon askance. They complicate administration by preventing an industry speaking with one voice. In some way they must be submerged or destroyed. Freedom of enterprise must be crushed. (I suspect that this kind of thinking has already gone pretty far in our Civil Service). All discriminating consumers who insist upon having goods which exactly meet their needs are a serious danger to the efficiency of the central administrative machine. The first measure in liquidation here is to reduce variety of production, the second is to standardise completely. Harassed administrators will come to look upon the discriminating consumer as their deadly enemy. Any straw will be clutched at to rationalize this hatred; the consumer doesn't really want all this variety; all this variety adds on to cost of production; all this variety increases the waste of stock holding; all this variety makes it more difficult for the consumer to choose and thus slows down sales, etc., etc. The freedom of the consumer is the real target of these criticisms. Finally, as the central administration creaks and groans as helpless administrators more frantically clamber up the treadmill, the cry for help will take the form of suggestions that this or that economic function "must be taken out of politics," that a "buffer must be placed between Ministers and civil servants and the public," that "economic programmes should be placed out of the reach of the unstable gusts of Parliamentary democracy." And political freedom slips away.

JOHN JEWKES

Man-Power Distribution 1939-1945:¹ Some International Comparisons

I. INTRODUCTION.

To estimate currently the total number of occupied persons and their distribution between various forms of employment has become an essential part of the process of economic accounting. From the point of view of statistical technique, such estimates are the foundation of national income calculations. From the point of view of economic policy the estimates were required in war-time for the full mobilisation of the available man-power, are required now as a basis for Government aid to reconversion, and will be required in future as a guide to employment policy, and as a test of results.

I want in this paper to draw some comparisons between the central trends in this country and those in the U.S., Canada, Australia and New Zealand. These comparisons are intended not so much as a measure of the relative costs of the war as to indicate some of the differences between the man-power situation here and that in other countries. These differences have greatly influenced war-time developments, but are perhaps even more interesting in their bearing in the future.

The ground covered by this paper is by no means untilled. The White Paper of "Statistics Relating to the War Effort of the U.K." published at the end of 1944, and Sir Godfrey Ince's paper to this Society on "Mobilisation of Man-Power in Great Britain," read a year ago, drew aside the black-out curtains which the war made necessary. Since the middle of 1945 the British employment statistics, like many other statistics kept secret in war-time, have been published in detail; indeed, far more information is now being published than before the war. These figures will be found in the *Ministry of Labour Gazette* and are summarised, along with many other statistical series, in the new *Monthly Digest of Statistics*, published by the Central Statistical Office. The U.S. and

¹This paper was read before the Manchester Statistical Society on 20th February, 1946. It has been revised and the figures brought up to date.

Dominion figures have also been considerably improved during the war, and some comparisons of the U.K., U.S. and Canada—going up to 1944—were given in the valuable report on “The Impact of the War on Civilian Consumption” made to the Combined Production and Resources Board and published in 1945.

This paper begins with an outline of the statistical methods employed to measure man-power changes in the different countries. I then discuss the extent to which man-power shortages in war-time have been met by increasing the supply of labour, drawing in formerly “unoccupied” classes, and the implications for the future. Next, a comparison is made between the structure of employment—how many people are engaged producing the different kinds of goods and services—in the different countries. This comparison bears on the problem of comparative productivity of industry. Next, I deal with the effects of the war on the various industries in the countries concerned, and with the different sources from which the additional man-power required for the war effort has been drawn. Finally, I try to summarise such information as is available about the trend of employment since the end of the war.

II. STATISTICAL METHODS.

For general purposes, we need a statistical system which will tell us both the total number of people available for work, and the number actually in work. For obvious reasons which it may be hoped will not continue, excessive attention has often been concentrated on the difference between the two, which is the number unemployed.

Difficulties of definition arise at every stage. The total available for work, or the Gainfully Occupied Population, is defined by the International Labour Office to comprise all engaged in remunerative occupations, whether as employers, workers on own account, salaried employees or wage-earners ; it also includes, of course, the unemployed. It excludes students, and persons occupied wholly in domestic duties, without pay.

The I.L.O. goes beyond the terms of its definition (in some of its statistical compilations) to include "unpaid family workers," that is wives and relatives of a proprietor (the case arises mainly in agriculture) who work for him without a set wage. In the figures given in this paper, unpaid family workers have been so far as possible included in the gainfully occupied population, although the statistics must necessarily have a very shadowy edge.

The definition of the unemployed is inevitably difficult and differences of definition are largely responsible for the widely varying estimates of unemployment in certain countries. The object is, presumably, to get a figure of the number of people who normally look to industrial (or agricultural) employment for a livelihood and who would work if work were available for them ; but this can only mean : if work of certain kinds, within a certain range of pay, within a certain geographical area, were available for them. Complicated conditional motives are no proper subject-matter for statistics ; since objective statistics therefore can hardly be expected, the only reasonably satisfactory solution is to adopt some administrative definition which gives as complete figures as possible (*e.g.*, in this country, the registered insured unemployed, excluding those classified by local employment exchange machinery as unfit for normal employment).

In this paper, domestic servants are also excluded from the gainfully occupied population, wherever possible. The main reason for this omission is that there is not sufficiently accurate information of their number in Great Britain because they are not subject to unemployment insurance, and the latest accurate figures (in the 1931 Census of Population) are too out-of-date to be useful.

In considering estimates of the total population at work, the distinction must be drawn between the number *employed* (whether wage-earners only, or wage-earners plus salaried employees) and the total *at work*, including employers and workers on own account. In most countries, detailed and frequent statistics refer only to the number employed, partly

because of the difficulty of obtaining without disproportionate expense regular information about the numbers of employers and workers on own account, and partly because for such people the difference between being in work and being out of work is a difference of degree rather than of kind.

GREAT BRITAIN.¹

Before the war, apart from the infrequent Censuses of Population and the restricted field covered by the Census of Production, the basis of employment and unemployment statistics was the unemployment insurance system. But although this system probably resulted in more accurate and comprehensive statistics of unemployment than were available for any other country, there was no direct record of the numbers employed. Since 1940, direct and detailed statistics of numbers employed have been collected by returns (now on a monthly basis) to the Ministry of Labour from all employers in manufacturing industry and from samples of employers in other branches of industry (supplemented by other returns such as returns to the Ministry of Agriculture from farmers of numbers employed in agriculture). The value of these statistics during the war was described by Sir Godfrey Ince in his paper to the Society last year ; it may be noted that the White Paper on Employment Policy emphasises the need for a continuance of these returns as a basis for full employment policy in the future.

The figures derived from the returns from employers are adjusted annually (the amount of adjustment needed is normally very small) to the statistics yielded by the insurance system at the exchange of insurance books which takes place each July. This exchange of books is, in effect, a detailed annual census of that 83 per cent. of the gainfully occupied population (outside the Forces) which at present comes within the scope of insurance. The new National Insurance Bill makes possible further extension of the statistics.

Monthly figures of employment based on the employers' returns are now published in the *Ministry of Labour Gazette*

¹ British statistics in this paper refer to Great Britain and not to the United Kingdom.

and in more summary form in the *Monthly Digest of Statistics*. The figures refer to insured persons employed plus part-time workers (these are not insured, but their number is taken from the returns, two part-time workers being counted as one unit).

These figures provide, within their definition, accurate annual statistics, and good estimates of month-to-month changes of employment, in nearly all industries. To complete the up-to-date statistical account of changes in the whole gainfully occupied population, estimates are made (a) of employers and workers on own account, (b) of the relatively small number of uninsured employees (in industries such as railway service, public utilities and national and local government, where the majority of those employed are not covered by unemployment insurance, and people in all industries with salaries over £420). The resulting estimates, which are necessarily more tentative than the statistics of the insured employed, have been published in summaries of the total man-power position (e.g., the White Paper on the National War Effort, Ministry of Labour Gazette; they are also given in total in the Ministry of Labour's monthly press statements and Monthly Digest of Statistics, Table 3).

UNITED STATES.

The method of approach in the U.S.A. has been in the past chiefly that of direct returns from employers of numbers employed, and this is still the main source of information about labour movements in individual industries. The returns, which do not cover agriculture, are made on a voluntary basis (to the Bureau of Labour Statistics) by employers in firms including about two-thirds of the total employed in manufacturing industry, and smaller proportions in other industries (only 25 per cent. in distribution). The returns from reporting establishments were adjusted to the total numbers employed as recorded by the biennial Census of Manufactures. The adjustment is now made by reference to the data on employment received through the Federal Security Agency from State Unemployment Compensation schemes.

These B.L.S. statistics refer to "production-workers"—a term recently introduced by the Division of Statistical Standards of the Bureau of the Budget, but described as being in effect equivalent to "wage-earners."¹ Estimates are also made (but are not available for individual industries) of total employment (including salaried staff) and are published by the B.L.S.

One of the late fruits of the New Deal was the inauguration in 1940 of a monthly sample survey of the labour force based on personal interviews and initiated by the Research Division of the Works Projects Administration (a commendable form of public works for unemployed statisticians, comparable with the production by the same organisation of the only adequate set of guidebooks to the United States).

In 1942 this project was taken over by the Bureau of the Census, its scope somewhat enlarged, and the sampling methods improved. The object is to obtain a month to month record of changes in the employment status of the whole civilian population fourteen years of age and over of the United States. In the final result, the population (men and women separately) is divided into the following categories :

Employed (including employers and own account) :

Agriculture

Non-agricultural industries

Unemployed

Not in labour force

A sub-classification of the Employed has recently been introduced, to distinguish people "with a job but not at work." This comprises workers who did not work because of illness, bad weather, vacations, labour disputes, or temporary lay-offs with definite instructions to return within thirty days of lay-off. A certain number of the people in this category would be eligible for unemployment benefit in Great Britain and would thus be classified here as unemployed. There are insufficient data available to correct this lack of comparability. The total number in this category in the U.S.A. at November 10th, 1945,

¹ For purposes of the Census of Manufactures, wage-earners includes manual workers and "working foremen."

was 1,710,000 or over 3 per cent. of the total civilian labour force ; this proportion might be accounted for solely by illness and trade disputes, but a small number should perhaps be added to the unemployed to provide a figure comparable with the British unemployment statistics.

The "employed" population includes unpaid family workers doing not less than fifteen hours a week (mainly in agriculture).

From July, 1945, the Bureau of the Census has tightened up its methods so as to include in the "employed" class more complete statistics of unpaid family workers, housewives, students and others, who do relatively small amounts of work (but not less than fifteen hours in the case of unpaid family workers). The result has been the addition of some 1,600,000 people to the "employed" class—140,000 from those previously classed as "unemployed" and the rest from those "outside the labour force." Since the old basis seems more in accordance with the British statistics (where two part-time workers are counted as the equivalent of one whole-time worker), and also because revised statistics on the new basis have not been issued for dates before July, 1945, I have in this paper adjusted the Census Bureau statistics for July, 1945, onwards to give results comparable with earlier dates.

Other adjustments which I have made to the Census Bureau figures are given in the footnote to Table 1. For example, domestic servants are excluded, and an estimate is made of ex-service men recently demobilised but not yet in jobs and not recorded as unemployed. The Census Bureau practice is to record such men as "not in the labour force"; the British practice of stating separately a rough estimate of their numbers is more informative, and provides important data for judging trends in employment in the immediate future.

The Census Bureau estimates of the employment status of the whole civilian population (published in the *Monthly Reports on the Labour Force*) are roughly comparable with the British "total man-power" series, attempting as they do to estimate

monthly changes in the total gainfully occupied population. The sampling methods used are ingenious and fairly elaborate¹, but there is not space to describe them in full.

The information is gained from personal interviews (in one week of each month) of a responsible member of each of 30,000 households—less than one per thousand of the total number of households in the U.S.A. It is recognised that the sample is extremely small and all the resources of sampling technique are needed to minimise the sampling error. Thus the results are not capable of much sub-division ; it would for example be impossible to use the sample to get results for individual industries or occupations.

To select directly at random one in every thousand households in the U.S.A.—apart from other objections—would mean great numbers of interviewers and great delay in the assembling of results, for instance, a town of 250,000 persons would yield only 60 households for the sample. Thus three stages of sampling are used : (a) The first process is to choose a number of geographical areas within which to select the households to sample. The principle of the "stratified sample" is adopted : that is, the country is divided into different types of area, and a greater proportion of some types of area than of others is sampled. For instance all the twelve great metropolitan areas (plus the District of Columbia), which include twenty per cent. of the total population, are deliberately selected for sampling, while varying proportions of other types of area are chosen. (In assembling the results, this deliberate bias is, of course, corrected by the use of appropriate weights). (b) By a further process of "stratification," smaller areas (*e.g.* city blocks) are picked out within the areas first selected. (c) Within these smaller areas, the households to be visited are selected at random ; the actual households are changed every six or seven months.

The estimates of total population derived from the sample are adjusted by reference to independent estimates of total population projected from the Census of Population of 1940.

¹ See "A New Sample of the Population," Census Bureau, September, 1944.

The difference between the Census Bureau's estimates of non-agricultural employment, and the Bureau of Labour Statistics estimates of numbers employed, should be accounted for by employers, unpaid family workers, and workers on own account in industry. In fact, the difference (except in 1941) does approximately correspond with the number of operating businesses as estimated by the Department of Commerce (approximately three millions), but there is a relatively small divergence between the two series which cannot be explained by this factor. Thus between 1939 (average) and mid-1945 the Census Bureau's estimate of non-agricultural employment rose by 7,670,000 while the B.L.S. series rose by 7,203,000 ; yet the number of businesses during this period was slightly reduced. The reasons for this discrepancy are being investigated.

OTHER COUNTRIES.

It is unnecessary to describe in detail the methods adopted in the other countries studied, since there are not, so far as I know, important differences in principle. No other country uses the sample personal interview method.

Canada relies chiefly on monthly returns of employment, from firms voluntarily reporting ; the coverage of the returns is good in manufacturing industry but less satisfactory in transport, distribution, etc. The results are published only in the form of index numbers but they can be related to other estimates (the annual census of Manufactures for manufacturing industries) of actual numbers employed. The Department of Labour supplements these returns by annual estimates of the total gainfully occupied population, including agriculture. It may be noted that the Department of Labour makes no attempt—probably with good reason—to estimate the number of women occupied in agriculture. Since, however, the Canadian Census of Population, 1931, shows 25,000 women occupied in agriculture (mainly as proprietors), and in order to render the Canadian figures more nearly comparable with those of the U.S.A., I have made a small addition to cover women proprietors and unpaid family workers.

In *Australia* monthly returns are rendered by employers in manufacturing and most other non-agricultural industries, and there is also an annual census of manufacturing production. The Department of Labour and National Service has made estimates of the total gainfully occupied population based on the National Register of 1939 and the Civilian Register of 1943, but a certain amount of extrapolation (more frankly, guesswork) has been necessary to bring these figures up-to-date.

The information available for *New Zealand* is scanty. Estimates of total gainfully occupied population have been published, under broad headings, and going up to 1944, by the National Service Department, but only fragmentary information can be got here of the numbers in individual secondary industries.

Comprehensive statistics for other Empire countries do not appear to have been published.

Tables drawn up on the basis of the statistics described, with some of the adjustments required to render them as comparable as possible between countries, will be found at the end of the paper.

Table I is an analysis of the total gainfully occupied population, including employers and workers on own account as well as employed persons. Table II shows the distribution of *employed* persons between the main branches of the economy other than agriculture. It excludes employers (because of the nature of the data available) and also, of course, excludes the unemployed. Table III shows the distribution of employees in manufacturing industries (*i.e.*, excluding transport, distribution, mining, construction, etc.). For the U.S.A. the figures relate to "production workers" only, these being the only detailed figures available; for the other countries, the figures relate in effect to all employed persons (insured persons plus part-time workers in Great Britain). The industries in the third table are arranged in two groups, following the grouping used in this country during the war: "Group I" industries (metal manufacture, engineering, vehicles and aircraft, shipbuilding

and repairing, metal goods and chemicals), where the "munitions" interest was predominant; and "Group III" industries (the remaining manufacturing industries, such as food, drink and tobacco processing, textiles, clothing, footwear, woodwork, paper, printing, etc.) where war supplies accounted for smaller proportions of output than in Group I.

Table IV brings together the numbers in the Forces, and the numbers engaged in manufacturing industries in supplies for the Forces, and shows the numbers remaining in manufacturing industries for work on goods for home civilian and export use.

III. VARIATIONS IN THE TOTAL GAINFULLY OCCUPIED POPULATION.

The number of people who may be expected to be available for work from a population of given size does not depend only on its age composition and social habits. To a great extent it is a function of the level (and distribution) of income. War experience has shown that the size of the gainfully occupied population can be extremely elastic—a point which assumes considerable importance in considering the statistical implications of a full employment programme.

Every country has a considerable reserve of potential workers (quite apart from those recorded as "unemployed"), consisting, for example, of women who would otherwise be engaged in housework, old people who would otherwise retire, young people who would otherwise be in school. An increase in prosperity seems to have two contrary effects. On the one hand, the higher the income, the greater the proportion in the marginal classes who can afford to do without paid employment. On the other hand, rising income normally means increasing demand for labour, and the provision of greater incentives to work. In war-time, the second tendency—reinforcing patriotic motives and legal compulsion—has prevailed over the first, and higher average incomes have everywhere accompanied an expansion of the occupied population. In normal times, however, statistical evidence suggests that the former tendency

predominates, and that the percentage occupied is less where (and when) the average income is greater.¹

The experience of English-speaking countries during the war may throw some light on capacity for expansion or contraction of the occupied population. Comparison of the percentages occupied at a given date between different countries is misleading because of the very different age compositions of the countries concerned (and also because of hidden differences in the definition of occupied persons). Comparison of the changes may, however, be useful, and will be found in Table I.

GREAT BRITAIN.

A feature of the British position, differentiating it from that of the other countries studied, is the fact that our total population within the ordinary working ages (taking the insurance limits of fourteen to sixty-four for men and fourteen to fifty-nine for women) has been practically stationary throughout the war, and is likely to remain stationary for some years. Thus there has been no natural increase to draw upon for the additional requirements of war.

Nevertheless, the total occupied population increased between 1939 and 1943 (the peak of mobilisation) by 2.9 millions, or by 14½ per cent. Of this increase, 2.2 millions consisted of women, the proportion of women of fourteen and over who were occupied rising from 27 per cent. in 1939 to 37 per cent. in 1943.² The proportion then began to fall away, but still stood at 31 per cent. at December, 1945. The increase among men was partly due to the postponement of retirement, and partly to the calling up of men who would otherwise have been in universities or colleges.

Total gainfully occupied population (all ages) rose from 20.35 millions in 1939 to 23.3 millions in 1943. After that the number fell back to 21.8 millions at December, 1945.

¹ A summary of the statistical evidence will be found in "The Economics of 1960," by Colin Clark, page 20.

² The decline in the number of domestic servants accounts for a proportion of this increase. Domestic servants are excluded from the occupied population.

What are the outlines of our probable post-war position ? It is estimated that if all the additional women who entered the occupied population during the war retired from paid occupations (or were not replaced), the total occupied population would shortly be about half-a-million less than it was in 1939.¹

The raising of the school-leaving age to 15 will reduce the occupied population during 1947-48 by 370,000. It may be assumed that our armed forces will for some time be greater than the 477,000 of mid-1939 ; the number engaged in the export trade paying off war-time debts or replacing income from lost investments, without any additional current return by way of imports, will presumably be substantial (an increase of at least half a million if our exports are to exceed the pre-war level by 50 per cent. or more).

Against these losses to production for home civilian use may be set (*a*) the probability that many additional women will remain in industry—perhaps the half million needed to restore our occupied population to the immediate pre-war level, and (*b*) the possibility of reducing the numbers unemployed below the mid-1939 level of just over 1½ millions. Thus it can be seen that the chances of restoring the pre-war level of employment on production for home use are not great.

This is the background of the man-power shortage. It is not, of course, any proof that we can automatically achieve full employment, because there is no reason why the domestic (or foreign) demand for goods, and therefore for labour, should be assumed to remain at the pre-war level. The problems of immobility of labour, of fluctuations in investment, of variations in foreign demand may be affected but are not abolished by the mere fact of a declining or stationary occupied population.

UNITED STATES.

The statistics of the U.S.A. position present a remarkable contrast. To begin with, there is a natural increase in the population of fourteen and over of about 900,000 a year, and a normal increase in the occupied population of about 650,000

¹ Although the total population within the normal working ages is stationary, the number actually occupied is likely to fall because of the decline in the younger age-groups ; most of the occupied women are within the younger age-groups.

(just over 1 per cent.) a year. Thus between 1939 and 1944 an increase of 3½ millions might have been expected without reference to the war.

In addition to this natural increase, there occurred a "war-induced" expansion estimated by the Department of Labour at 7.3¹ millions, occurring between 1940 and 1944. This war-induced increase was about 14 per cent. of the 1940 occupied population, and was thus slightly less than the comparable figure of 14½ per cent. in Great Britain.

The total expansion of 10½ millions, or 20 per cent., in total occupied population goes far to explain why the U.S.A. was able to support armed forces ultimately exceeding 12 millions without seriously interrupting the upward trend in civilian consumption.

The war-induced increase in the number of occupied women, although substantial—amounting to about 3.0 millions, was less striking than that in Great Britain. The proportion of occupied to total women of fourteen and over in the U.S.A. rose from 26 per cent. in 1939 to 32 per cent. in 1944 (against a rise in Great Britain from 27 per cent. to 37 per cent.). The U.S.A., however, had another large reserve to draw upon which was not available in large numbers in Great Britain—namely the much higher proportion of high school, college and University students. Probably nearly half the total war-induced increase in the occupied population came from this source including a considerable number of the increase of three millions among women already noticed; indeed the increase among women was probably about equally divided between girls who would otherwise have been in school and women with household duties.

The statistics may be of interest as well from the educational as from the economic point of view: in 1940, of 14.6 million people of 14-19, there were 8.8 million, 60 per cent. full-time in school, and 300,000 combining school with part-time work. The proportions for boys and girls were about equal.

¹ The Department of Labour estimate (*Monthly Labour Review*, January, 1945) is 6.7 millions, but appears to refer only to the expansion in the industrial population. The war-induced increase in total occupied population, including the Forces, must have been about 7.3 millions.

By 1944, 2.8 millions more than the normal number had been drawn into the labour force (full-time) or the Forces. In addition, of course, numbers of students of twenty and over entered the Forces before completing their courses.

The war-induced increase in the occupied population began to disappear late in 1944, and the decline was greatly accelerated after VE Day. Thus between July and November, 1945, after allowing for the natural increase, it appears that about 800,000 men and 1,800,000 women—in total nearly 40 per cent. of the war-induced increase—retired from the occupied population.

If, the whole war-induced expansion of occupied population were to disappear during the next few months, the occupied population at mid-1947 (which may be taken as a reasonable starting point for post-war calculations) would stand at about 57 millions,¹ compared with 51.7 millions in 1939.

How far do such figures justify the frequently expressed fears that the economy of the U.S.A. will be unable to support the strain of consuming (or investing) as much as it will be able to produce? Mr. Vinson posed the problem in the famous phrase, "We are in the pleasant predicament of having to learn to live 50 per cent. better than we have ever lived before."

Several observations may be made to place these widely accepted forecasts in perspective. In the first place, the increase in the numbers at work in 1947 as against 1939, required to achieve "full employment" in 1947, on the calculations just referred to, is about 20 per cent. (after allowing for 2 millions in the armed forces and 3 millions unemployed). A part of this increase occurred before Pearl Harbour, and the corresponding percentage increase in employment on civilian and export required in 1947 against 1941 is about 16 per cent. During this period the total population of the U.S. will have increased by 4½ per cent.

¹ In "The Post-war Re-employment Problem" (Brookings Institution), Karl T. Schlotterbeck puts the figure at 58.5 millions (56.5 millions excluding domestic servants). In "National Budgets for Full Employment," the National Planning Association suggest 59.5 millions for 1947 and 61.5 millions for 1950 (say 57.5 and 59.5 respectively, excluding domestic servants). These N.P.A. estimates allow for retention of part of the war-induced increases.

Secondly, the expectation of a 50 per cent. rise in total output is based on the assumption not only of an increase in employment of the order suggested here, but also of the maintenance between 1939 and 1947 of the pre-war rate of increase in average output per head (reckoned to be $2\frac{1}{2}$ —3 per cent. a year). It is believed, however, that the technical advances of the war years have been largely concentrated in certain industries—such as aircraft and shipbuilding—whose output was most urgently needed for the war. It is highly optimistic to suppose that an average increase of $2\frac{1}{2}$ —3 per cent. has occurred over industry as a whole. This implies a condition of “full employment” in which certain kinds of engineering products are being produced, and consumed, at rates far in excess of pre-war consumption, while the level of output of, e.g., textiles and clothing, is increased comparatively little. There is no reason at all why the free disposition of incomes should result in a demand so distributed as to require maximum production from every industry in a war-distorted economy. (Disposal of the overspill in export markets is, of course, a theoretical possibility.) Thus the calculation of an overall 50 per cent. expansion of output seems not only over-optimistic but to disguise the real “predicament.” The practical problem of full employment in the U.S. appears to be not how to expand the capacity of the American stomach to absorb a feast which may be more statistical than real, but how to reconcile the internal stresses between investment and consumption, or between foreign and domestic trade.

Finally, the “predicament” is not a new one. Even in 1937—a boom year—something like 20 per cent. of the non-agricultural occupied population was unemployed. As the authors of “America’s Capacity to Produce” pointed out at the time, the full use of human and mechanical resources could have resulted in a very substantial improvement in the standard of living. The predicament was resolved then by leaving the resources unused.

CANADA.

The total increase in occupied population from 1939 to 1945 was about 880,000, of which about 300,000 appears to be the natural increase due to growth of population (50,000, or over 1 per cent. a year). The war-induced increase was thus about 580,000, or 14 per cent. Over 300,000 of the war-induced increase appears to have been males. The percentage of women occupied rose from 17 per cent. to 23 per cent; both these figures are very low, on account of the large proportion of the agricultural population, where—as in other countries—only a few of the women are recorded as “occupied.”

Students accounted for about a third of the war-induced expansion.

Comprehensive figures of the trend of occupied population since the end of the war are not available, but the employment figures suggest a decline.

AUSTRALIA.

The natural increase in occupied population is about $1\frac{1}{2}$ per cent a year, and the war-induced increase between 1939 and 1944 appears to have been about 300,000, or 13 per cent. As in Canada and the U.S. there was a large increase in the number of occupied men. The expansion of manufacturing industry in Australia was, however, based almost entirely on additional women's labour.

There is evidence of a decline in occupied population after 1944.

NEW ZEALAND.

The natural increase of occupied population appears to be negligible, and the whole increase of 73,000, or $5\frac{1}{2}$ per cent., between 1939 and 1944 may be described as war-induced.

COMPARATIVE TRENDS.

The extent of the war-induced expansion of the occupied population was remarkably similar in four of the countries studied :—

Great Britain	...	...	...	...	$14\frac{1}{2}\%$
United States	...	...	...	...	14%
Canada	...	...	...	...	14%
Australia	...	...	...	...	13%
New Zealand	...	...	...	...	$5\frac{1}{2}\%$

This similarity, however, conceals important differences of composition. Canada, Australia and New Zealand all held large reserves of "unoccupied" men. In all three countries, only about 80 per cent. of the total male population of 14 and over was recorded in 1939 as occupied, against 90 per cent. in Great Britain and United States; in Canada and Australia, the proportion rose to about 90 per cent. during the war, but in New Zealand only to 84 per cent. These differences do not seem to be accounted for wholly by the calling into the labour force, or the Forces, of students.

In Britain alone women constituted the bulk of the labour reserve. The proportion of women of 14 and over who were occupied rose as follows :—

Great Britain from	27%	to 37%,	by 10% of the total.
United States ,,	26%	,, 32%	,, 6% ,,,
Canada ,,	17%	,, 23%	,, 6% ,,,
Australia ,,	20%	,, 26%	,, 6% ,,,
New Zealand ,,	28%	,, 34%	,, 6% ,,,

In all the countries except New Zealand, for which no evidence is available, the war-induced increase in the occupied population began to disappear from 1943 in Great Britain, from 1944 in United States, from mid-1945 in Canada and Australia.

IV.—REDISTRIBUTION OF LABOUR DURING THE WAR.

What sections of the economies in the different countries felt most severely the drain on man-power for the war?

MANUFACTURING.

In all five countries, the total number employed in manufacturing was substantially increased during the war, the proportionate increase being greatest in Canada (increase of 188 per cent.). The overall increase concealed important redistributions between the manufacturing industries.

For Great Britain, United States, Canada and Australia it is possible to estimate approximately the numbers employed

in the manufacture of equipment and supplies for the Forces—this being the major distorting factor. The estimates for Great Britain, United States and Canada¹ are based mainly on returns from employers showing the proportion of their labour, or output, destined for the Forces (including Allied Forces, e.g., military Lend-Lease supplies from the United States). Although the figures must in some cases be regarded only as approximations, the systems in force in all these countries for allocation of materials (whether under the Materials Committee in London, or the Controlled Materials Plan in Washington) have facilitated the identifying of end-use of the finished product.

The numbers engaged in the manufacture of equipment and supplies for the Forces in Great Britain, United States, Canada and Australia, in 1944 (see Table 4), reached the total of 15,200,000—equivalent to 86 per cent. of the combined total engaged in manufacturing in all five countries in 1939. (In 1943 the total was probably slightly greater.) The total war demand for manufactured goods thus approached the total peace-time demand. Some of this war demand (e.g., that for food, or clothing) for the Forces was, of course, just a substitute for the normal peace-time demand of the same individuals, although generally on a rather different scale of provision; but the bulk consisted of war equipment, for which there is only a very restricted demand in peace-time.

In 1944, the requirements of the Forces accounted for 66 per cent. of the total manufacturing employment in Great Britain, 59 per cent. in the United States, 60 per cent. in Canada, and 20 per cent. in Australia (whose major war contribution was, of course, in other fields). The effects on civilian and export production of this vast diversion of resources may be illustrated as follows :—

Percentage reduction of manufacturing employment on civilian and export work, 1939 to 1944 : Great Britain, fall of 54 per cent.; United States, fall of 32 per cent.; Canada, fall of 24 per cent.; Australia, rise of 9 per cent.

¹ The figures for Australia are derived from total employment in Government factories and others engaged wholly on munitions, plus estimates for other factories.

Canada and Australia are, of course, far more dependent than Great Britain or the United States on imports of manufactured goods, and their sacrifices of civilian goods took the form of reduced imports, which the expansion of local output did not offset.

The effects of the diversion on individual industries can be seen from Table 3. In Group I (metals and chemicals), just over 80 per cent. of the employment in 1944 in both Great Britain and the United States was on work for the Forces. In Group III (all other manufacturing industries) in 1944, a little over one-third of the labour in Great Britain, and a little under one-third in the United States, was engaged on work for the Forces.

The percentage changes in total employment in the two groups of industries were as follows :—

Percentage change in total employment, 1939-1944 :

		Group I	Group III
Great Britain	...	... + 63	-33
United States	...	... +175	+12
Canada	...	... +225	+34
Australia*	...	... + 84	- 1

* 1939-40 to 1942-43.

If 1941 is regarded as the more appropriate base for pre-war comparison in the United States, the figures for United States are :—

Group I	Group III
+65	-2

The effects on Great Britain of a stationary occupied population are here painfully distinct. Whereas in the United States, Canada and Australia, a vast expansion of the Forces and of Group I industries was gained without serious loss (for some time, indeed, with advantage, through multiplier effects) to the Group III industries, the British war effort in terms of Armed Forces and of employment on metal and chemical products could be achieved only by ruthless sacrifice of other manufacturing industries.

Even in the United States, however, the expansion of total employment in Group III was not enough to offset the call on these industries for supplies for the Forces; thus employment on civilian and export work in Group III was reduced between 1939 and 1944 by over 20 per cent. in the United States, compared with a reduction of 54 per cent. in Great Britain.

The loss of civilian production in the United States was much greater, as a result of the pressure of war demands, in the Group I industries, where civilian and export production fell by 47 per cent. between 1939 and 1944 (against a fall of 56 per cent. in Great Britain). The products of these industries include the "consumers' durables," from automobiles to electric irons; it was in this range of products that the American civilian consumer felt the pinch of war most keenly.

In Great Britain, all industries in Group III suffered severe cuts between 1939 and 1944. In the United States, only the textile and footwear industries (footwear because of the special circumstances of the leather shortage) showed a net decline between 1939 and 1944, but most of the industries lost labour between 1941 and 1944, losing some of the ground gained in 1940 to 1941 when aid to the British was having the natural multiplier effects on civilian production.

After 1944, transfer of labour back from Group I to Group III began in Great Britain, although on a very small scale. In the United States, by contrast, the decline in employment in Group III industries was accelerated; although the pressure of demand for munitions was reduced (reflected in the fall in Group I employment), the requirements of men for the Forces were increased.

MANUFACTURE FOR EXPORT.

In Great Britain, in 1939, about 930,000 persons are estimated to have been employed¹ in manufacturing for export

¹ Insured employed; the "total manpower" on export was about 1 million.

—about 14 per cent. of the total employed in manufacturing. 1939 was a poor year for exports, as was 1938, which is often taken as a pre-war base year; the employment figure for 1937 was probably about 1 million. These figures do not include the labour engaged on exports in transport, distribution, etc., nor do they allow for such factors as the labour engaged in mining coal with which to make goods for export. Dr. Barna¹ has made a comprehensive estimate which includes all the goods and services embodied in export (including services to foreign tourists) in 1938 and reaches a total of 2,075,000; or 10 per cent. of the total employed population; his estimate for manufacturing only appears to be approximately consistent with the 930,000 for 1939 given above.

The number employed in manufacturing for export in Great Britain fell to less than 300,000 by mid-1944—a decline of more than two-thirds. As an indication of the reason for this particular sacrifice, it may be pointed out that if the number on export work had remained at the 1939 level of over 900,000, then, other things being equal, the number employed on home civilian production in 1944 would have been reduced below the actual level by more than 25 per cent. (If exports had been maintained—assuming that shipping had been available—we might, of course, have been able to import more; on the other hand, we might simply have been prevented from accumulating so large a deficit on our overseas balance.)

The corresponding figures for the United States tell the story in reverse. An estimate by the Department of Labour² of employment in export in 1939 shows that the number so employed in United States manufacturing industry (roughly comparable with the figure of 930,000 for Great Britain) was then

¹ London and Cambridge Economic Service, December, 1945.

² Monthly Labour Review, July, 1945. The total for non-agricultural export is given as 962,000, but this includes transport, distributive, etc., services and coal and power embodied in export and is more nearly comparable with Dr. Barna's estimate of 2,075,000 for United Kingdom in 1938.

about 450,000, or $4\frac{1}{2}$ per cent. of total employment in manufacturing against 14 per cent. in Great Britain. No estimate appears to have been published for the war years, but a rough indication can be got from the trend of the export statistics. The total volume of United States exports, including munitions, and covering both Lend-Lease and cash exports, was in 1943 and 1944 about $2\frac{1}{2}$ times the volume of 1939. Excluding munitions and agricultural products, the volume of exports of manufactured goods, both Lend-Lease and cash, was probably about two-thirds greater in 1944 than in 1939. This suggests that the number so employed rose from 450,000 in 1939 to about 750,000 in 1944.

Thus in 1939, the number employed in manufacturing for export was about twice as great in Great Britain as in United States; by 1944 it was nearly three times as great in the United States as in Great Britain. Since 1944 the trend has been reversed, employment on exports rising in Great Britain¹ and changing little in United States; even by mid-1945 employment on export in Great Britain had risen to 400,000 and had probably remained in the United States at about 750,000, or had possibly fallen slightly.

NON-MANUFACTURING INDUSTRIES.

In agricultural employment, Great Britain was the only country to show an important increase during the war. In the United States and Canada, there were substantial reductions (Table 1).² Transport and Utilities expanded, except in Great Britain (where the fall was not, relatively to other industries, considerable). Construction was reduced in all countries, but most heavily in the United States; until Pearl Harbour, employment on construction was rising, with the erection of war plants. (An estimate may be noted in passing: in August, 1944, according to *Construction*, published by the Department of Labour (November, 1945), 67,000 persons were

¹ The 1939 level of employment on export goods in manufacturing industry was regained early in 1946.

² Although the volume of farm output rose by about one-third in U.S. between 1935-9 and 1944.

employed on the construction of plants to produce atomic bombs ; presumably, the figure would have been very much higher a year or two earlier).

The decline in employment in mining was common to Great Britain, United States, Canada and Australia, as was the great expansion in Government. Distribution and other services (catering, laundries, etc.) were in Great Britain a most important source of man-power for war needs, yielding 29 per cent. of their labour force. In the United States and Canada, distribution and services employed more people in 1944 than in 1939, although there was some decline in the United States after 1941.

THE WAR EFFORT IN TOTAL.

It has already been shown (Table 4) that in 1944, in the countries studied, over 15 million people were engaged in the manufacture of equipment and supplies for the Forces. Probably about 40 per cent. should be added to this total for work on war supplies in distribution, transport, mining, utilities, Government, etc. (but excluding agriculture)¹, making a total engaged on work for the Forces of 21 millions. The combined total of the Forces of the five countries (Table 4) was 18 millions in 1944. Thus the total war effort, in terms of manpower, in the five countries may be put at 39 millions, out of a combined occupied population of 93 millions.

Of these 39 millions directly engaged on the war effort, however, about 3½ millions were offset by natural increase in working population since 1939, 11 millions by the war-induced increases in occupied population (sacrifice of household maintenance, leisure, or education), and 9½ millions by the reduction of unemployment (no sacrifice). The remaining 15 millions were got by diversion of labour from civilian and export production.

¹ Estimated from figures of total numbers engaged in war activities in Great Britain, United States and Canada, as given in "The Impact of the War on Civilian Consumption."

Thus over 60 per cent. of the man-power for the combined war effort was drawn from resources which in 1939 were not being used at all for production (in the case of most housewives and students, for good reasons). Only in Great Britain, where the available labour reserves were extremely limited, did the largest proportion of the additional man-power come from diversion of labour from other employments.

The different sources from which additional man-power was drawn are summarised (for 1944) in the following table :—

		Millions.			
		G.B.	U.S.	Canada	Australia
Total in Forces and on work for Forces (1944) ...	...	12	25	1.5	.9
Obtained from—					
Reduction in unemployed plus war-induced in- crease of occupied popu- lation		4	15	1.2	.6
Natural increase in occu- pied population ...		—	3	.3	.2
Diversion from civilian and export employment ...		8 ¹	7		.1

V.—MOVEMENTS IN THE RECONVERSION PERIOD.

G.B., U.S. AND CANADA.

Demobilisation of the Forces and reductions of war work in industry have been the initiating factors in developments since the end of the war. Taking the second half of 1945 to represent the first stage of reconversion, we find that the reductions in the numbers in these two branches of the war economy in Great Britain and the U.S. have been as follows :—

¹ Includes Two Millions in the Forces or on work for the Forces at mid-1939.

Forces	G.B.	reduced by 24 per cent.
	U.S.	36 „ „ „
Supplies and Equipment ..	G.B.	55 ¹ „ „ „
	U.S.	75-80 per cent.
Total War Sector	G.B.	37 per cent.
	U.S.	over 50 per cent.

By February, 1946, the strength of the forces has been reduced (since June, 1945) by 39 per cent. in G.B. and by 57 per cent. in the U.S.

Equally important is the difference in the rates of contraction. In G.B. both demobilisation of the Forces and reductions in war work in industry have been progressing over the whole period. In the U.S. the first reductions were much more sudden, coming almost at once after V.J. Day; nearly 40 per cent. of the total reduction of the Forces and of war work in industry took place approximately during September.

The first effect on industrial employment in general in both countries was a loss to the total occupied population, which in G.B. was reduced by about 600,000 over the half-year—mainly women leaving industry. The reduction was proportionately rather less in the U.S. (about 1,200,000). Corresponding statistics for Canada of recent changes in total working population, or of the strength of the Forces, do not appear to be available.

Total industrial employment (omitting agriculture because of the uncertain seasonal element) fell in G.B., the U.S. and Canada from August to October as the munition cuts took effect. October seems to mark the end of this first phase of reconversion in all three countries, and after that month there were signs of re-expansion as the entry of ex-Servicemen into industry began to offset the decline in war work. Only in

¹ This figure is known to underestimate the actual reduction in employment on Supplies and Equipment for the Forces.

Canada, however, was the mid-1945 level regained by the end of the year. That point was not reached in Great Britain until February, 1946, and was not reached even by February (probably on account of the labour dispute) in the U.S.¹

The trend in individual industries, as shown in the following table, reveals a remarkable similarity of experience in the three countries. The fall in Group I industries (metals, engineering, and chemicals) was naturally heaviest in the U.S. because of the swifter contraction of war work. But there seems to have been just the same difficulty in the U.S. and Canada as in G.B. of securing the expected expansion in the Group III industries such as textiles, clothing, paper, food and drink, etc. It is, of course, true, as already pointed out, that the Group III industries in the U.S. were not greatly cut until 1944. But civilian production in these industries in the U.S. was by early 1945 reduced to fairly low levels; the consequent shortage of consumer goods in the U.S. was certainly severe in relation to market demand, although not perhaps in relation to physical need. Hence the U.S. is meeting the same problem of bottlenecks in the consumer industries as we are confronting here, although the U.S. is meeting them on a less exacting level.

¹ The U.S. Census Bureau figures in Table I show a higher level of non-agricultural employment in December than in June 1945, whereas the B.L.S. statistics, in Table II, show a fall. This is probably because the former series includes strikers as "in work" (see page 6) while the employers' returns used by the B.L.S. would exclude them.

A criticism may be ventured of the Canadian figures of total non-agricultural employment. As published, the index of "total employment" represents the total derived from the firms reporting and shows a lower level of total unemployment in December than in June 1945. When the figures for each branch of industry are reweighted according to the approximate numbers actually employed in each branch (as is done in Table II), a rise is shown from June to December. The discrepancy arises because the percentage of firms reporting is relatively small in the non-manufacturing branches and insufficient weight is thus given in the published index to the substantial increases in employment in those branches.

Percentage change in industrial employment—

June to December, 1945 :

		G.B.	U.S.	Canada
<i>Total manufacturing</i>	..	— 9	—19	—12
Group I industries	..	—17	—34	—30
Group III industries	..	+ 6	+ 2	+ 2
Food, drink and tobacco		+ 5	+ 5	+ 3
Textiles	..	+ 4	+ 5	
Clothing	..	+ 8		
Footwear and leather	..	+ 4	+ 5	
Woodworking	..	+ 2		
Rubber	..	+ 5	+ 2	
Stone, clay and glass	..	+13		
Paper, etc.	..	+10	+ 7	
Printing, etc.	..	+ 9	+ 9	
Other manufacturing	..	+13	—16	

Non-manufacturing :

Transport, communica-				
tion and utilities	..	+ 4	+ 1	+ 3
Construction	..	+27	+22	+27
Logging	..			(Seasonal)
Mining	..	— 2	+ 1	+ 4
Distribution & Services		+ 5	+11	+ 8
Government	..	— 2	— 1	
<i>Total non-agricultural em-</i>				
<i>ployment</i>	..	— 2	— 3	+ 2

In the manufacturing industries as a whole, production for civilian and export use in G.B. increased by 50 per cent. during the second half of 1945, but at the end of the year was still only 81 per cent. of the level of 1939. In the U.S. also there was an expansion of about 50 per cent. in the second half of the year, but the level at the end of the year was probably about 3 per cent. above that in 1939.

There is a similar parallel development in the non-manufacturing industries except that in the U.S. and Canada the expansion of distribution and other services has been much greater than in G.B. This branch of industry in the U.S. had, by the end of 1945, regained the 1939 proportion of total industrial employment and will, it seems, very soon catch up the long-term upward trend. In G.B. the recovery in distribution has so far been only moderate in comparison with that in manufacturing.

UNEMPLOYMENT.

The inevitable increase in transitional unemployment in G.B., from 100,000 in mid-1945 to about 300,000 at the end of the year, was as small as could be expected, and the end-of-year figure represented an unemployed proportion of only about 2 per cent. In the U.S. also, the rise has been moderate in view of the more rapid contraction of the war economy, total unemployment as estimated by the Bureau of the Census, rising from about one million in mid-1945 to about two millions in September; from September to the end of the year there was little change, but the number unemployed rose to 2,700,000 in February, 1946. At the latter date, unemployment represented only about 5 per cent. of the total labour force (excluding Forces and ex-Servicemen on leave). A rather higher rate of unemployment than that in G.B. is natural if only because of the wider geographical spread of munitions works; the closing down of munitions work has left many war workers hundreds of miles from home, and in areas where the normal demand for labour is relatively small. The problem of surplus labour areas is probably much more severe than in Great Britain, and a large part of the wartime shifts in population will have to be reversed.

The Census Bureau figures of unemployment are consistent with statistics of claims for unemployment compensation.

From the end of August to the end of October, the two months when the cuts in war work were greatest, nearly three million claims for compensation were laid. Compensation is not, however, paid until the claimant has been unemployed for two weeks, and the number of these three million claims which eventually became payable was only one million. This shows that only about 1 in 3 of those who registered claims during that period were out of work for more than two weeks.

A new and more comprehensive series of unemployment figures for Canada began publication with a total of 167,000 unemployed (about 3½ per cent. of the civilian labour force) in November, 1945.

The remarkable similarity in employment and unemployment trends between the three countries during the first phase of reconversion has, of course, been weakened by the industrial disputes which broke out in the U.S. at the beginning of this year. There is, however, no sign yet that, as some feared, the collapse of the war economy will bring about general depression and a really serious problem of unemployment in the U.S.

APPENDIX

TABLE I
ANALYSIS OF THE GAINFULLY OCCUPIED POPULATION*

	Great Britain†						United States		
	1939	1944	1945	1939	1941	1944	June	June	Dec.
1. Forces	477	4963	5094	3859	360	1630	11400	12300	7900
Working in ...	...	...	...	...	...	...	...	...	...
2. Industry†	17093	15933	15309	15065	33530	38170	41830	41200	41500
3. Agriculture	910	1034	1025	1010	9400	8640	8060	8000	8000
4. Unemployed	1270	54	103	285	8400	5010	1000	1080	2100
5. Ex-Service not yet in work	—	20	40	750	—	—	—	—	1900
6. Total Gainfully Occupied Population	19750	22004	21571	20969	51690	53450	62290	62580	61400
... 7. Total Population of working ages	32100	32200	32200	32200	100046	101900	104510	105270	105900
8. Percentage Occupied { 14-64/59 14+ ...	61.6 54.9	68.3 60.5	67.0 59.0	65.0 57.0	51.7	52.5	59.6	59.5	58.0

Table I—continued.

	Canada				Australia				New Zealand		
	1939 April	1944 April	1945		1939 June	1944 June	1945 June	1939 Dec.	1944 Dec.	1945 March	
1. Forces	8	785	762	13	725	(600)	3	126	99
Working in	—	—	2217	3124	3126	1889	2040	517	493
2. Industry	1260	1035	1100	425	410	155	162
3. Agriculture	(700)	65	80	167	300	25	(25)
4. Unemployed	—	—	—	—	—	—	—
5. Ex-Service not yet in work	4185	5009	5068	2627	3170	3090	781
6. Total Gainfully Occupied Population	8270	8850	8950	5250	5600	5670	1300	1316	—
7. Total Population of Working Age§	50.6	56.6	56.6	50.1	56.6	54.4	54	59.4	—
8. Percentage Occupied

* The **Gainfully Occupied Population** comprises all engaged in remunerative occupations : it includes employers, persons working on own account, salaried employees, wage-earners, and the unemployed ; unpaid family workers are included so far as possible ; members of the Forces serving abroad as well as at home are included. It excludes students and housewives and domestic servants.

† Industry includes all non-agricultural occupations.

‡ All Great Britain figures (except the final row of percentages) relate to persons of insurable age (Men, 14-64; Women, 14-59).

§ For Great Britain, Men 16-64, Women 14-59 ; for other countries, total 14 and over.

Figures in brackets are rough estimates.

TABLE II
ANALYSIS OF NUMBERS EMPLOYED IN INDUSTRY
Excludes Unemployed

Thousands

	Great Britain				United States			
	1939		1945		1939		1945	
	June	1944	June	Dec.	Average	1941	June	Dec.
1. Manufacturing ...	6569	7320	6699	6128	9797	12751	16202	14619
2. Transport, Communications & Utilities	1667	1637	1658	1723	3237	3573	4128	4158
3. Construction ...	1207	713	632	805	1753	2236	691	845
4. Logging ...	—	—	—	—	311	343	217	235
5. Mining ...	873	813	799	784	845	947	844	794
6. Distribution and Services	3833	2711	2738	2864	10778	11816	11519	11593
7. Government ...	1135	1559	1573	1540	3633	4001	5245	5312
8. Total ...	15284	14753	14099	13844	30353	35668	38846	37556
								36339

	Canada				Australia			New Zealand	
	1939		1945		1939	1944	1945	1939	1944
	Oct.	1944	June	June	June	June	June	Dec.	Dec.
1. Manufacturing ...	658	1240	1165	1020	540	736	719	(108)	120
2. Transport, Communications and Utilities ...	265	336	346	355	242	270	279		69
3. Construction ...	195	151	154	196	180	78	(85)		21
4. Logging ...	70	105	121	194	(20)	18	(18)		7
5. Mining and Quarrying ...	85	77	73	76	54	45	45		17
6. Distribution and Services	790	1010	1047	1127	742	693	726		
7. Government ...	(100)	175	175	(170)	(80)	112	(110)		
8. Total ...	2163	3094	3081	3138	1858	1952	1982	517	493

Post Office employees are included under "Transport, etc." and not under "Government."

Great Britain : Insured employed persons plus half-time workers (two counted as one unit) and plus estimated employees in industries not fully covered by insurance (railways, government, etc.). Excludes employers and workers on their own account.

United States : Total employed (not only production-workers as in Table III). Excludes employers and workers on own account.

Canada : Total employed plus (in most cases) employers and workers on own account.

Australia : Total employed except for construction, for which the figures probably include substantial numbers of employers and workers on own account.

New Zealand : Total employed plus employers and workers on own account.

TABLE III
EMPLOYMENT IN INDIVIDUAL MANUFACTURING INDUSTRIES
(Thousands)

	Great Britain				United States				Canada				Australia				New Zealand	
	1944		1945		1939		1941		1944		1945		1939		1944		1942/43	
	June	June	June	Dec.	Aver.	June	June	June	Dec.	June	Dec.	June	June	Dec.	Dec.	Aver.	Dec.	
Manufacturing :—																		
Group I (Metals and Chemicals)																		
(a) Metal manufacturing, metal goods, engineering, aircraft, ships and other vehicles ...	2759	4466	3866	3244	2637	4445	7529	6322	4091	165	530	453	324	184	328	12	(eng. only)	17
(b) Chemicals and allied products ...	284	506	438	342	346	488	664	692	526	23	81	76	48	24	54			
Total Group I ...	3043	4972	4304	3586	2983	4933	8193	7014	4617	188	611	529	372	208	382			
Group III (Other Manufacturing)																		
(a) Food, drink and tobacco ...	592	477	485	507	949	1038	1121	1066	1112								87	96
(b) Textiles ... (incl. cotton) ...	988	622	619	641	1194	1333	1156	1094	1145	{ 121	154	158	{ 51	59				
(c) Clothing (excl. footwear) ...	496	285	307	332	790	908	867	795	797	{ 88	81	12	{ 17					

Great Britain: Total insured employed (14-64/59) plus half-time workers (two counted as one unit).

United States : Production workers (ie., wage earners) employed.

Canada : Total employed, plus employers and workers on own account.

Australia and New Zealand : Total employed.

TABLE IV

NUMBERS IN FORCES; NUMBERS ON WORK FOR FORCES, AND ON WORK FOR CIVILIAN AND EXPORT USE, IN MANUFACTURING INDUSTRIES

(Thousands)

	1939 June	1941 June	1944 June	1945 June	1945 Dec.
Var Sector—					
Forces :					
Great Britain	477	3,374	4,969	5,094	3,859
United States	360	1,630	11,400	12,300	7,900
Canada	8	260	785	762	
Australia	13	—	725	600	
New Zealand	3	—	126	99	
Total of above ...	861	—	18,005	18,855	
Equipment and Supplies for Forces (manufacturing only)					
Great Britain	1,202	(3,750)	4,850	3,791	1,724
United States	—	2,000	9,500	8,000	(2,000)
Canada	—	350	737	600	(250)
Australia	—	—	150	120	
Total of above ...	—	—	15,237	12,511	
Civilian and Export Production (manufacturing only) :					
Great Britain	5,325	—	2,470	2,870	4,364
United States	9,797	10,751	6,702	6,619	(9900)
Canada	658	802	503	565	(800)
Australia	540	—	576	599	
Total of above ...	16,320	—	10,251	10,653	

Employed in manufacturing :—

Great Britain : Insured employed plus part-time.

United States : Total employed.

Canada : Total employed plus employers and workers on own account.

Australia : Total employed.

TABLES.—SOURCES AND NOTES.

TABLE I

GREAT BRITAIN.

"Monthly Digest of Statistics," "Ministry of Labour Gazette," and "Statistics relating to the War Effort of the United Kingdom" (Cmd. 6564 of 1944); Unemployed are insured unemployed only; Part-time workers: two are counted as one unit. Total Population and Gainfully Occupied Population exclude men over 64 and women over 59.

UNITED STATES OF AMERICA.

From Bureau of Census "Report on the Labour Force," with following adjustments:—

- (i) Exclusion of estimated number of domestic servants;
- (ii) Number working in agriculture in 1944 and 1945 have been roughly corrected for seasonal variation;
- (iii) Ex-service not yet in work: rough estimate on basis of Monthly Report on Labour Force at 29th December, 1945 (Bureau of Census excludes this category from the gainfully occupied population);
- (iv) November, 1945: all figures have been roughly adjusted to Bureau of Census "old basis." (From July, 1945, Bureau of Census included in the working population larger numbers of (a) unpaid farming workers; and (b) students and housewives, doing any amount of part-time work.)

Part-time workers are not stated separately, but appear to be included in full.

CANADA.

From "Annual Reports of the Department of Labour," with following adjustments:—

- (i) Domestic servants (roughly estimated) excluded;
- (ii) Estimate of 50,000 women working in agriculture added (Department of Labour does not attempt to estimate what proportion of women on farms (about

800,000) should be included in the gainfully occupied population; some proportion should be included to afford reasonable comparability with the United States statistics, and to cover proprietors and workers on own account. 1931 Census gave 25,000 women working in agriculture).

- (iii) Unemployed in 1939 not stated by Department of Labour. The figure given is a very rough estimate. The unemployment figure for November, 1945, is derived from the first of a new series of quarterly surveys of the labour force, and may not be fully comparable with earlier figures.

Part-time workers are not stated separately but appear to be included in full.

AUSTRALIA.

Estimates based on figures of the Department of Labour and National Service, quoted in "Quarterly Summary of Australian Statistics," "Monthly Review of Business Statistics," the "Official Year Book of the Commonwealth," "Factory Production," "Primary Production" (all compiled by the Acting Commonwealth Statistician), and "Facts and Figures of Australia at War" (Department of Information).

NEW ZEALAND.

Based on "Report of the National Service Department 1945."

TABLES 2 AND 3.

GREAT BRITAIN.

"Ministry of Labour Gazette" and estimates. Figures relate to men 14-64 and women 14-59.

UNITED STATES.

Department of Labour estimates from "Monthly Labour Review" and "Survey of Current Business," adjusted for transfer of employment in Navy Yards from Government to Manufacturing and for exclusion from Manufacturing of Saw Mills and Logging Camps.

CANADA.

June, 1944, estimates from "Impact of War on Civilian Consumption," adjusted for other dates from indexes of employment published by Department of Labour.

AUSTRALIA and NEW ZEALAND.

Same sources as for Table 1.

In Table 3 the industries have so far as possible been grouped on a comparable basis, but it is improbable that all discrepancies have been removed.

TABLE 4

Forces: As for Table 1.

Employed on work for Forces:—

GREAT BRITAIN.

Ministry of Labour Gazette.

UNITED STATES.

1944 figures from "Impact of War on Civilian Consumption"; figures for other years adjusted by reference to index of munitions production and other estimates.

CANADA.

Annual Reports of Department of Labour and "Impact of War on Civilian Consumption."

AUSTRALIA.

"Quarterly Summary of Australian Statistics" gives amount of "Governmental Employment in Factories (Munitions, Aircraft and Ships)." These figures comprise Government establishments and certain private firms engaged exclusively in aircraft and shipbuilding. Fifty per cent. has been added to these figures to allow for work for the Forces in other factories.

C. T. SAUNDERS.

Future Competition between Natural and Synthetic Rubber

I

1. The post-war status of natural¹ rubber in competition with the synthetic product is an issue of considerable interest to the British economy. Until the Japanese war, rubber was much the most valuable export from the British Colonial Empire, the economic basis of some of the most prosperous colonial territories, as well as the most important cash crop grown by smallholders in the British Colonies. Moreover, rubber was also a prime source of dollar exchange to the outside world ; in four out of the five years 1937-41 rubber was the leading American import. In the exceptional years 1940 and 1941 it was more than twice as important as the next commodity on the list. The f.o.b. value of British rubber exports to the U.S.A. was about 150 million dollars in 1940 and 175 million dollars in 1941. Though the prospects of the industry are very uncertain, there is little doubt that natural rubber will remain an important source of the prosperity of Malaysia and will very probably continue to yield appreciable amounts of dollar exchange to the British and Dutch economies.

2. The normal annual demand for rubber (or rather the quantity demanded at a reasonable range of prices) is most unlikely to exceed 1.5-1.7 million tons for some years to come. Indeed, this may be an optimistic estimate, since even in the record year of 1941, absorption (consumption) was only about 1.2 million tons. Total manufacturing capacity, which sets an upper limit on absorption at any given time, is at present

¹ Throughout this article natural rubber is used as an interchangeable term with plantation rubber. The supply price of appreciable quantities of wild natural rubber—the product of trees naturally occurring in the jungle—is so high that in peace time this product will not be competitive with plantation rubber or with general purpose American synthetic rubber. Plantation rubber covers, of course, both estate and smallholders' rubber. In the financial press plantation rubber is generally used as being synonymous with estate rubber, as distinct from the produce of smallholdings. This is altogether inaccurate ; rubber from the smallholdings is derived from trees planted for the specific purpose of yielding rubber, i.e., it is plantation rubber.

believed to be about $1\frac{3}{4}$ million tons annually. These figures exclude the temporary restocking demand for the raw material, which may amount to about 250,000–350,000 tons, spread over perhaps two years.

Estimates of the order of magnitude of the potential capacity can be made fairly safely. Synthetic capacity in North America was in January 1946, about 1.2–1.3 million tons annually, with another 150,000–200,000 tons in Europe and the Soviet Union, say, a total annual capacity of between 1.3 and 1.5 million tons. It is most unlikely that the physical capacity of the rubber plantations in the Far East should be reduced substantially below the basic quota under the International Scheme, which totalled approximately 1.6 million tons in 1941. The smallholdings will have suffered hardly any damage, and in all probability the great bulk of mature estate rubber will be tappable after a comparatively short period of cleaning up. Whatever damage will have been suffered is likely to be offset, or more than offset, by the heavier yields following a prolonged rest, and by the very substantial additional capacity of the N.E.I. native areas discovered by a survey in 1939–41, the results of which were not reflected in the N.E.I. quota. It is virtually certain that within two or three years the potential capacity of the reasonably accessible areas will be over rather than under 1.6–1.7 million tons. It thus appears that in two or three years' time plantation and synthetic rubber capacity will be around or over three million tons a year. For the first year, or perhaps two years, after the war, when the restocking demand will be considerable, and the Far Eastern plantations coming back into production gradually, every ton of rubber will be readily marketable, and indeed badly needed; subsequently, however, excess capacity (disregarding for the moment the distinction between high cost and low cost capacity) is likely to emerge on a far larger scale than at any time before the war. If the synthetic plants in the U.S.A. were operated at capacity, and the estates and smallholdings in the more easily accessible areas in the East were tapped at a rate at which bark consumption about equals

bark renewal, the supplies forthcoming would be far in excess of prospective absorption on all reasonable assumptions.

This prospect of excess capacity lends interest to a review of the probable competitive strength of plantation and synthetic rubber.

II

3. An attempt to gauge the prospective competitive position of these two industries in the post-war world seems at first sight to be so hazardous as to be hardly worth making. Economic, social and political conditions in some of the principal rubber producing territories are very unsettled; the level of estate wage rates and the cost of stores is uncertain, and so, indeed, is the availability of estate labour in Malaya and in the N.E.I. Again, the progress of synthetic rubber the industry in America has been so rapid that until quite recently costs were on an unstable basis.¹ The difficulty of estimating the supply price is enhanced by the prolonged spells of compulsory restriction during the inter-war period, the last of which continued right up to the Japanese war. It appears, nevertheless, that there are certain considerations which justify a fairly positive conclusion which, though not entirely free from hazard, is supported by sufficient evidence to appear very probable.

4. A factor of first importance in this context which is often disregarded, is the large share of the total planted area owned and operated by smallholders, known popularly, but inaccurately, as natives. According to the statistics of the International Rubber Regulation Committee, summarised in the Statistical Supplement to the *History of Rubber Regulation*, smallholdings accounted for 48 per cent. of the area under

¹ In the opinion of the official British-Dutch-American Rubber Study Group these difficulties are prohibitive. A communiqué issued in January, 1945, after a series of meetings devoted to the study of post-war rubber problems, stated *inter alia*: "The Group also considered the probable trend of production costs, but reached the conclusion that any definite estimates would be purely speculative, in the case of natural rubber, because of the uncertainties about conditions in territories at present in 'Japanese occupation, and in the case of synthetic rubber because large scale production in the United States has only recently developed." This conclusion was substantially reiterated after another series of meetings in November 1945.

rubber, with 4,275,520 acres out of a total of 8,863,107 acres at the end of 1940. The N.E.I. native area included in these figures is given as 1,806,516 acres. This is now known to have been enormously underestimated, the true figure being about 3,200,000 acres, as is stated elsewhere in the *History of Rubber Regulation* (p. 83).¹ On the basis of the revised estimate, smallholdings would account for close on three-fifths of the planted area. As normal unrestricted yields per acre on smallholdings appreciably exceed those on estates, the share of smallholders in the post-war capacity of natural rubber may be conservatively put at between three-fifths and two-thirds of the total. Thus the cost of production of well over one-half of the post-war capacity of natural rubber can be foretold with considerable confidence ; it will be nil, or almost nil.

Smallholders' rubber will not have suffered any damage worth mentioning as a result of the Japanese occupation, especially as even years of neglect cause but little harm to smallholdings. The most dangerous enemies of the rubber tree do not thrive, and certainly do not spread, in smallholdings ; *lalang*² is suppressed by the dense shade, while the incidence of root disease is low, much lower than on estates. The smallholdings will undoubtedly have been overgrown by secondary jungle, but the experience of the 1930's during and

¹ In accordance with the traditional pseudo-accuracy of rubber statistics, the acreage figures given in the otherwise very useful Statistical Supplement to the *History of Rubber Regulation* are shown to the nearest acre, though they are subject to a very large margin of error. The figure of the N.E.I. native area—1,806,516 acres—is the highwater mark of this pseudo-accuracy. In 1934-36 a tree count was undertaken in the native rubber growing districts of Sumatra and Borneo, and 582, 365, 725 rubber trees were officially said to have been found in these districts, which cover an area much larger than Great Britain. From the estimated average planting density, it was calculated that the area under rubber totalled 1,683,328 acres. This figure was adopted as the basis for the distribution of new planting rights in 1939-40 at a rate of 5 per cent. of the planted area at the end of 1938, and was also used in the quota negotiations preceding the renewal of rubber regulation in 1939. Preliminary results of a survey begun in 1939 suggest that the actual area was over 80 per cent. larger than the figure calculated from the results of the tree count.

² *Lalang, imperata arundinacea*, is a dangerous speargrass, common in the secondary jungles of Malaysia. It has done much damage on the widely planted estates, but on smallholdings it is suppressed by the shade of the closely planted trees.

after the slump has shown that such holdings can be cleared with little trouble, and will yield as well as ever. Whatever minor damage the smallholdings will have suffered is likely to be more than offset by the effects of the prolonged rest.

The great bulk of native rubber even in the N.E.I. can be tapped without recourse to outside labour. The majority of the smallholdings which reached maturity in Sumatra and Borneo in the mid-1930's were tapped or tappable by the owner and his family, and it was gradually being realised that the dependence of the garden owners on outside labour had been greatly overestimated. Moreover, even when the holdings were tapped by outside labour, it was generally on some kind of share basis, not involving any cash expenditure, and at the same time sufficiently attractive to call forth all the labour required. The purchase of coagulants, the hire of a mangle, and local transport to the market, may involve very small cash costs, but even these can, if necessary, largely be dispensed with. In short, the smallholders could almost be referred to as no-cost, rather than low-cost, producers.

5. Though the smallholder incurs next to no cash costs, the supply price of native rubber is positive, since at very low prices the gardens in the interior are not worth tapping, and other crops may become more profitable. An examination of past performance will enable us to form an idea of this supply price.

For this purpose it is necessary to look back to the period immediately preceding the introduction of regulation in 1934. Over the three months March-May, 1934, the exports of N.E.I. native rubber were running at an annual rate of 300,000 tons and were rising rapidly; though these exports probably included some slight reduction of stocks, this was of minor importance. Moreover, according to official N.E.I. statements in 1934, these exports were the product of family tapping only. At the time the London price was around 5d.-5½d. per lb., with a sterling-guilder exchange rate less favourable to sterling than the present rate (7.30 against 7.60). The Malayan smallholders also produced at an annual rate of 300,000 tons at these prices. The combined exports of Siam

and Sarawak (almost entirely smallholders' rubber) were running at the time at the rate of 30,000 tons a year and were also rising very fast, while the production of smallholders in Ceylon and British North Borneo during the early months of 1934 can be conservatively estimated at an annual rate of 35,000 tons.

The early part of 1934 thus saw smallholders' output at close on 700,000 tons, with a London price of about 5d.-5½d. and production was still rising rapidly. This, however, is by no means all. Huge areas of N.E.I. native rubber reached maturity only after 1934, while in Siam and Sarawak, too, much rubber was still immature in the early part of 1934. The capacity of smallholders' rubber expanded substantially after 1934, and its supply price declined; in the instance of the N.E.I. natives so greatly as almost to destroy the whole regulation machinery. It can be conservatively estimated that, if there had been no restriction, during the mid-1930's (say 1936-38) a London price of 4d.-5d. per lb. over a few months would have resulted in annual exports of smallholders' rubber of around 750,000-800,000 tons.

There is no reason why the supply price should be substantially higher after the liberation of the Far East. The great bulk of the capacity can be operated without outside labour, and is thus largely unaffected by changes in wages. Similarly, the great majority of native rubber growers also produce their own food requirements, and their output is largely independent of the price of rice. Though this does not hold for the Malayan smallholders in parts of Western and Southern Malaya, many of whom need to buy rice, rubber cultivation was so much the preferable alternative for them, that they can be expected to return to it as soon as rubber is marketable again. Very high prices of rice and of other agricultural products, especially of vegetable oils, may divert some marginal resources of both labour and land from rubber to other cultivation, but this is most unlikely to be of quantitative importance. Rubber is certain to remain a crop ideally suited for cultivation by smallholders; as before, it will be largely non-seasonal, free from weather risks, easily marketable, and require less sustained

work than most alternative crops. With prices of 4½d.–5½d.¹ per lb. c.i.f. consuming countries (including freight at about 1d. per lb. as against about ½d. before the war), rubber should be as attractive to the smallholders as it was in the past. It is naturally assumed that the simple commodities on which the smallholder usually spends his income will be available.

Lastly, taking a longer view, a further factor of great potential significance needs to be remembered. The supply prices so far given refer to the unaided efforts of the smallholders. Should high-yielding planting material, especially clonal seeds,² be made available to the smallholders, the supply price of their rubber would be substantially reduced. Output per tapper and per acre would be doubled or trebled, and every time a new rice clearing is opened in the N.E.I.³ a high-yielding small rubber plantation would be established at no individual

¹ The estimates of prospective supply price assume broadly the maintenance of the purchasing power of sterling and dollar at approximately the 1945 levels. They would require obvious modification if this assumption breaks down, with a violent fall in the purchasing power of money in Britain and the U.S.A.

² These are the genetically propagated offspring of high-yielding bud-grafted trees. Genetical research in rubber yielded remarkable results in the years immediately before the Japanese war, and yields equal to those from the best bud-grafted areas were secured from areas planted with these specially bred seedling trees. As clonal seeds are as easy to plant as ordinary seeds, once they are distributed to smallholders, the small native planter should be able to obtain very high yields without much difficulty.

³ For centuries past the natives of Sumatra and Borneo had cleared plots of land year by year, from virgin or secondary jungle, and after taking off one or two rice crops allowed the clearing to revert to secondary jungle, which, in turn, might be cleared again a few years later, should this prove the best plot for the purpose. This system was retained after the advent of rubber, except that the latter was frequently planted together with the padi. After the second rice crop was taken off, rubber was left alone until it became tappable. The cost of adding rubber to the existing system of cultivation was negligible in terms of cash or effort. In considering the long period effects of this system of rubber cultivation, it should be noted that not only is virtually unlimited land available in the very sparsely populated areas of Sumatra and Borneo, but also that rubber cultivation by smallholders takes almost nothing out of the soil, and an abandoned smallholding reverts to secondary jungle with *hevea* seedlings predominating, and in a few years' time it is as suitable for native rice or rubber growing as before. In certain areas, especially in the N.E.I., a secondary jungle of rubber seedlings is actually beneficial, as it helps to keep out *lalang* which, once established over large areas, is difficult to clear, and also because rubber forests are less liable to burn than most other jungle⁴ plants.

or social cost. In Malaya, too, ample land is still available for the extension of the planted area. With high-yielding material the smallholders would find it worth while to produce very large quantities of rubber (possibly several hundred thousand tons) at, say, 1d. per lb., delivered Singapore. In this context it is worth recalling that in 1936 the N.E.I. natives exported 149,000 tons of rubber at an f.o.b. price of 1d. per lb. In that year exports under the regulation scheme were kept within the permissible level by a special tax designed to depress the internal price sufficiently to make tapping unattractive, and the f.o.b. price over the year, after payment of tax was almost exactly 1d. per lb. of dry rubber. Thus, an estimate of several hundred thousand tons at 1d. per lb. delivered Singapore is not as chimerical as would appear at first sight.

6. An estimate of the supply price of estate rubber is much more conjectural. The estates will have been much more affected by the Japanese occupation than the small holdings. Appreciable areas may have been ruined by disease or parcelled out to smallholders. The cost of rehabilitation may be heavy, though it is not likely to be crippling. Some kind of compensation is likely to be forthcoming from the Governments, while many sterling companies have substantial liquid reserves. It is hardly worth guessing at the actual level of rehabilitation costs, since these are likely to vary very greatly between different areas and properties, but are unlikely greatly to affect the supply price of large quantities of rubber. A guess at the order of magnitude of estate rubber production costs may, however, be hazarded.¹

Wages and salaries are almost certain to be substantially above 1941 levels, but they are unlikely to rise to runaway inflationary levels. Indian wages in Malaya may be 50 per cent. or 75 per cent., or at most 100 per cent. above 1940 and 1941 levels, but not five or ten times those rates. The cost of living will have risen greatly; industrialisation in India will have made appreciable progress; the Indian Government will

¹ "Remember there is no harm in guessing as long as we do not pretend our guesswork to be something else."—Sir Arthur Quiller-Couch, *Cambridge Lectures*, p. 27.

take the opportunity to insist on further improvements in the conditions of Indian labour as a pre-requisite of the resumption of Indian emigration. These factors will be reflected in an appreciable increase in money wages. But unless the Indian Government proposes to prohibit emigration altogether, Indian labour should be available at the rates indicated, or at even lower wages, and it is difficult to visualise an improvement in economic and social conditions in rural Madras so great as to render emigration unattractive. The Malayan authorities may also be able to supplement the labour resources of the country by migration from South China and Java. This again may involve an appreciable but probably not inordinate rise in the cost of labour. In the N.E.I. and in French Indo-China, where migration is a domestic issue, the rise in money wages is likely to be smaller.

On general grounds the increase in salaries may be expected to be somewhat less pronounced. The general presumption is strengthened in the rubber industry, as a number of former planters are likely to be attracted by the prospect of playing a part in the reconstruction of the industry. Moreover, the recruit for a planting billet is usually of specialised qualifications and inclination, who, if the industry is not prosperous, is prepared to, and may have to, accept a salary which does not reflect fully the general rise in wages and salaries. In short, the forecast is for an appreciable, but not exorbitant, rise in wages and salaries over the 1940-41 levels; say, of an order of 40 per cent. to 100 per cent.

Let us now return again to 1933-34. At that time, many company chairmen stated that with a London price of 3d.- $3\frac{1}{2}$ d. they could make a fair profit; in 1932, several stated that they could do so at $2\frac{1}{2}$ d. The average cost of production of the sterling companies furnishing returns to the R.G.A. was below 3d. per lb. in 1933¹; this figure (which included a small allowance for depreciation) was an overall average of the costs of several hundred companies with a total output of about 100,000 tons. A price of $3\frac{1}{2}$ d. actually let loose a Stock Exchange

¹ The actual figures are shown in "Notes on Cost," *Economica*, May, 1945, p. 91.

boom, even before restriction negotiations had started. The costs of 1932-33 were based on very low salaries, and on impossibly low wages, but the entire output was derived from unselected seedling trees and harvested before the development of more economic tapping systems introduced in the mid-1930's. It was repeatedly stated at the time by the highest authorities that the development of high-yielding planting material could be confidently expected to absorb the rise in salaries and wages, and therefore in the long run estate costs need not rise above 1933 levels. A rise in wages such as we assume here was clearly not contemplated in 1933, nor, however, was the further improvement in planting material and technique reported by 1940. The introduction of restriction, the freezing of the industry and the prohibition of new planting, once again brought to nought the plans for a substantial increase in technical efficiency.

The post-war wage and salary rates can be estimated to be of the order of $2\frac{1}{2}$ - $3\frac{1}{2}$ times the 1933 level. If, after the war, a period of price competition is at last introduced in the plantation rubber industry, output is concentrated on the most efficient producers (who need not be the largest, as seems so often assumed), no unnecessary and expensive cultivation methods adopted, and staffs not inflated, it is highly probable that within a few years after the reconquest of the Far East, the estates could produce at least half-a-million tons at about 5d.- $5\frac{1}{2}$ d. per lb. (say, 8-9 U.S. cents c.i.f. U.S.A. ports). It will be noted that this estimate is not based on an overall average of estate costs, but on the supply price of output from the more efficient part, say one-half to two-thirds of the estate industry. This qualification is important, as it definitely postulates concentration of output in the hands of the cheapest producers, whose identity can be established only after a spell of price competition. The estimate presupposes that full advantage is taken of those improvements already fully proved by 1940. The realisation of the estimate would be much facilitated by the resumption of Indian emigration to Malaya, but even without this factor it is not likely to be greatly

falsified, as the N.E.I. and French Indo-China are independent of outside labour, and Malaya by no means wholly dependent on Indian workers.¹

On these estimates of smallholders' supply price and estate costs, if price competition becomes the order of the day, then two or three years after the reconquest of the Far East a dollar price of about 8-9 cents. per lb. c.i.f. consuming countries should elicit about 1.3-1.4 million tons of rubber, the greater part from the smallholdings. Rounding off the figures, a total annual supply of 1.5 million tons in response to a price of 10 U.S. cents. (6d.) per lb. within a very few years after the reconquest and pacification of Malaya seems a conservative estimate.

7. Taking a longer view, further considerations need be remembered. It is not always realised that plantation rubber was still in its technical infancy in 1941. Almost the entire industry was in its "first short period" in the Marshallian sense in that the physical capital first invested had not yet been renewed. Moreover, the larger part of the planted area had spent almost the whole of its mature life under restriction. Some nine-tenths of the mature area under rubber in Malaya at the end of 1940 was planted since 1910, and some three-quarters since 1913; some forms of organised restriction had been in force for at least some months every year between 1918 and 1928, and again after 1934, so that some nine-tenths of the 1940 area spent about two-thirds of its tappable life under restriction, and for three-quarters the proportion was about four-fifths. The proportion in the other territories was somewhat smaller, but the bulk of the planted area in all

¹ Throughout this discussion, it is assumed that the transport systems of the territories will be restored, and supplies of the comparatively simple equipment of plantation operations will be available. These assumptions are of the same order as the understanding that there will be ships to carry the rubber, and they do not directly affect the estimates of the costs of estate operations. Transport and freight costs do not press heavily on rubber and a rough and ready allowance has been made for these in our estimates. The cost of estate supplies which are really essential items of cultivation has also been broadly allowed for.

territories (except French Indo-China) was restricted throughout the greater part of its mature life.¹

The combination of the short history of the industry, the longevity of the trees, and the long spells of restriction on output and planting, brought it about that the best form of organisation, the most elementary points of planting technique and the relative efficiency of different classes of producer were altogether undecided by 1941. Technical progress (especially the development of high-yielding planting material) was extremely rapid throughout the 1930's, but only a small trickle could percolate into actual practice. Some important technical developments were announced only in 1940, or even later. The most important single factor is, however, that the distribution of clonal seeds to smallholders, combined with free new planting, holds out the possibility of large quantities of rubber at 4 Straits cents (1d.) per lb. delivered Singapore. The immaturity of the plantation industry is generally overlooked, and the revolutionary changes pregnant in the 1940-41 stage of plantation technique are rarely appreciated.

III²

8. In discussing synthetic rubber production it is unnecessary for our purpose to go beyond North America³, which accounts for about nine-tenths of the present annual capacity. Decisions about the level of synthetic rubber production in Germany or in the Soviet Union are unlikely to be influenced by the relative prices of synthetic and natural rubber.

¹ The Stevenson Scheme (1922-28) did not operate outside Malaya and Ceylon, but a very large proportion of the planted area outside these territories was planted after 1924, and reached maturity only shortly before, or actually after the establishment of the 1934 scheme.

² I have had much help from Mr. W. G. G. Kellett of the London Rubber Secretariat in the collection and presentation of the data for this section.

³ There is a small Canadian output, about 4 per cent. of the North American total. The raw materials for this production are supplied largely by the United States and the production is often included in the U.S. output statistics.

Moreover, it is known that neither German nor Soviet synthetic rubber is competitive with the American production either in price or in quality. There is no synthetic rubber capacity of any importance elsewhere.

The spectacular development under the stress of necessity of American synthetic rubber production emerges from the following table. The figures should be seen against a North American (U.S. and Canadian) rubber consumption of 700,000 tons in 1940, and 820,000 tons in 1941.

TABLE I
OUTPUT OF SYNTHETIC RUBBER IN THE U.S.A. AND CANADA
 (Thousands long tons)

	Buna S	Neoprene	Butyl	Buna N	Total
1939	—	1.8	—	—	1.8
1940	—	2.5	—	—	2.6
1941	—	5.7	—	2.7	8.4
1942	3.7	9.0	—	9.7	22.4
1943	184.8	33.6	1.4	14.5	234.2
1944	712.0	56.7	23.0	16.8	808.5
1945 (est.)	881.0	55.0	53.0	30.0	1,020.0 (approx.)

These figures include the output of the few private plants ; some 97-98 per cent. of the total is produced in Government owned plants.

Sources : Rubber Reserve Company, *Report on the Rubber Program, 1940-1945*, and War Production Board, Rubber Bureau, *Final Report (1945)*.

Buna S is a so-called general purpose synthetic rubber, while the others are known as special purpose synthetics.¹ Buna S is a direct substitute for natural rubber, used principally in tyres and tubes. The special purpose synthetics are qualitatively superior to the natural product in certain particular characteristics, and tend to displace it in a few uses where resistance to oils and chemicals is important ; but they also extend the field of usefulness of rubber products. These rubbers would not normally compete with natural rubber on

¹ Butyl is a half-way house between general and special purpose synthetic rubbers.

a price basis ; their superior qualities would ensure them a market for special purposes, even at prices appreciably in excess of the natural product. The price of rubber is usually a small proportion of total cost in such items as tank linings, oil hoses, pipe rings, etc., and in these uses the lengthened life of the product would more than offset the higher cost. But the distinction between general and special purpose synthetic rubbers, though useful, is sometimes drawn too sharply, since the economic principles underlying the choice between natural and synthetic rubber are the same whether general or special purpose synthetic is used. Thus, while we shall be primarily (though not wholly) concerned with Buna S, the analysis applies with only slight variation also to Butyl, Neoprene and Buna N.

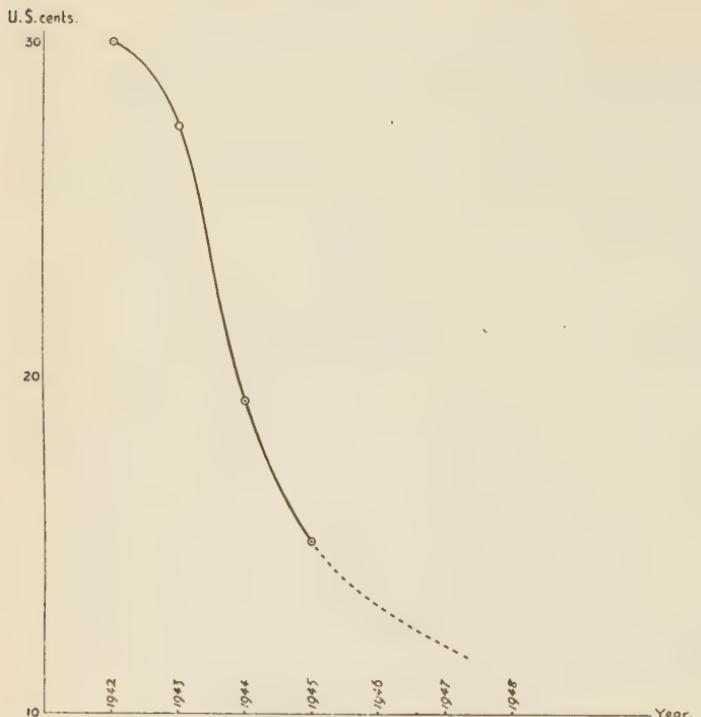
9. There has been a steep fall in the cost of production of all types of American synthetic rubber over the last five years. For our purpose, the cost of petroleum based Buna S is of greatest interest. The cost of Buna S derived from grain alcohol¹ (the principal alternative source under the U.S. Government programme) is several times that of the petroleum based product, and is most unlikely to be competitive in the next few years.

The trend of costs is shown in Fig. 1.

¹ Alcohol in the production of butadiene—the key intermediate chemical in the production of Buna S—can be derived from many different agricultural products, as well as from turpentine and from petroleum. Normally the great bulk of the U.S. output of industrial alcohol is derived from molasses or from petroleum. As a result partly of the tanker shortage, and partly of the scarcity of certain critical materials, there were important changes after 1941, and the alcohol for the synthetic rubber programme had to be based on grain. On all reasonable assumptions about the post-war prices of agricultural products, grain alcohol is entirely non-competitive as a source of butadiene and therefore of Buna A. In January 1946, it was reported that production was to be suspended in all grain alcohol synthetic rubber plants ; according to this proposal, these plants should be kept in stand-by condition, and petroleum Buna only should be produced.

FIGURE I.

AVERAGE COSTS OF PETROLEUM-BASED BUNA S UNDER THE
U.S. GOVERNMENT PROGRAMME (U.S. CENTS PER LB.).



* The figures shown are cash costs, and exclude depreciation and amortisation; some $1\frac{1}{2}$ -2 cents per lb. would cover these. The dotted line shows the most recent official U.S. estimates of future costs.

Sources: Rubber Reserve Company, *Report on the Rubber Program, 1940-1945* (Washington 1945); U.S. Tariff Commission, *War Changes in Industry Series No. 6, Rubber* (Washington 1944); *Special Report of Office of U.S. Rubber Director* (Washington 1944); also some unpublished material available at the London Rubber Secretariat.

Thus by the end of 1945 the average cash cost of petroleum based Buna S had been reduced to below 15 U.S. cents per lb.; a few very efficient producers had costs as low as 13 cents. The rapid reduction in costs was the result partly of the interchange of patents and of the pooling of staffs and of information.

A more important factor was the translation into mass production of the small scale, experimental, production of 1940-41 when several processes had just passed the laboratory stage. The tapering curve of the cash cost of production after large scale production was reached also reflects this, and is in accordance with *a priori* expectations.

The general trend of the costs of special purpose synthetics is broadly similar, though the level of costs is above those of Buna S, except for Butyl, the most recent cost figures of which justify the early expectations that this would eventually prove the cheapest synthetic rubber, with costs below those of Buna S.

10. Over the last two or three years, since the large scale production of Buna S really developed, there have been many estimates and calculations of its prospective costs in the first few post-war years. Most of these range from 14 to 20 cents per lb., with or without amortisation; more recently there has been a tendency to reduce the estimates, and figures of 13-15 cents have become more usual. So far as is known, there is no responsible estimate of less than 10 cents, excluding amortisation and selling costs.

Colonel Bradley Dewey, U.S. Rubber Director in 1943-44, and a strong champion of synthetic rubber, stated in December 1943,¹ that some Buna S was already being produced at a cash cost of under 14 cents.² Colonel Dewey predicted post-war costs of between 14-16 cents, including depreciation, for efficient plants working at full capacity.

The results of the most detailed and painstaking official study of the trend of the cost of production of synthetic rubber

¹ *Chemical and Metallurgical Engineering*, December 1943.

² According to Mr. John L. Collyer, Chairman of Goodrich, writing in the *India Rubber World*, February 1945, Buna S at a cash cost as low as 14 cents was being produced in a few plants only. He anticipated all-in costs of about 16 cents, and thought a further 4 cents would be necessary for sufficient profit to attract capital. A few weeks later Mr. R. P. Dinsmore, a vice-president of Goodyear, estimated the post-war costs of petroleum based Buna S at 12-13 cents, including amortisation and a return on capital. Mr. P. W. Litchfield, chairman of Goodyear, has estimated the full post-war costs of Buna S at 15 cents per lb. (*Notes on America's Rubber Industry*, January 1945).

are embodied in the *Special Report of the Office of the U.S. Rubber Director on the Synthetic Rubber Programme*.¹ After a careful review of the factors likely to affect the main cost items, the authors suggest that after the war the cash costs of petroleum based Buna S may be expected to be about 11-12 cents per lb. c.i.f. Akron (the leading rubber manufacturing centre in the U.S.A.) ; their estimate is based on reasonable, though somewhat optimistic, assumptions.² Though these estimates are subject to a margin of error, they are not altogether conjectural. By August 1944, sufficient experience had been gained of the most important operations to give reasonable ideas of the order of magnitude of the cost of production ; this is particularly true for those petroleum based operations whose plants were working at, or near, rated capacity, since the cost of these processes is much less influenced by the vagaries of raw material prices than those of the alcohol butadiene operations.

Amortisation charges are hazardous to estimate, as the economic life expectation of the plants under peace-time conditions cannot be foretold. A piece of capital equipment should be written off by the time the market for the product disappears, or when the total cost of production from new equipment is less than the prime cost of output from the existing asset. Amortisation costs as high as 6 cents per lb. have been suggested for synthetic rubber, on the basis of an investment of about 600 dollars per ton of annual capacity, and a five-year amortisation. This cost figure appears excessive, as the life expectation of the whole investment (including roads, public utilities, etc.) is certain to be more than five years. Moreover, under normal conditions the cost of construction is certain to be less, while improved design would lengthen the life of the plants. Amortisation costs are nevertheless unlikely to be below 1½ cents per lb. on any reasonable assumption, while another half per cent. is a conservative estimate for selling charges, management fees and royalties, so that for

¹ U.S. War Production Board, Washington, August 1944.

² See pp. 6-12 of the *Report* for a detailed discussion of the figures. It seems that in the assumption of raw material prices and of conversion costs, allowance has been made for probable technical improvements.

these items at least 2 cents must be added to the cash cost estimates given in the preceding paragraphs.¹

It would thus appear that estimated all-in costs of 12–13 cents per lb. ($7\frac{1}{4}$ d.– $7\frac{3}{4}$ d.) of Buna S are the lowest which can be reasonably expected in the early post-war years. The estimate allows for an appreciable further reduction of costs from present levels as a result of technical progress; the majority of responsible estimates in the U.S.A. anticipate all-in costs of around 13–16 cents ($7\frac{1}{4}$ d.– $9\frac{1}{2}$ d.) per lb. A liberal allowance for the effects of technical progress is clearly justified in such a very young industry. In the more distant future, further reduction might be possible, and even revolutionary changes in technique may have to be envisaged, but such contingencies cannot be expressed quantitatively—nor are they more likely to occur in the synthetic industry than in plantation rubber. It will be noted that on the assumption of section II (especially that of a free hand to smallholders) these figures leave a comfortable margin in favour of the plantation product.

11. The unit cost of the raw material to the rubber manufacturer is, however, not the only factor determining the competitive production of synthetic and natural rubber. First, differences in processing costs must be taken into account. Ever since the inception of the American synthetic rubber programme, these have been substantially higher in the manufacture of tyres from synthetic rubber than from natural rubber. Though the margin has been reduced it is still appreciable, and in tyre manufacturing costs are still about 15 per

¹ Discussion of the amortisation charges of synthetic rubber plants is often unnecessarily confused by speculation about the price at which the U.S. Government will eventually dispose of the plants. Whatever price is charged for these, it will not affect depreciation and amortisation costs as part of the long period supply price of synthetic rubber, since, when a plant comes to be renewed, the operator will estimate prospective profits and capital charges at that time in deciding whether or not to continue production. The price (or rental) charged by the authorities would, however, affect costs and the supply price during the period between their disposal by the Government and the first replacement. The importance of this matter seems exaggerated, as the difference between giving away the factories and charging any reasonable price is unlikely to represent more than $2\frac{1}{2}$ cents per lb. on the output to be expected over the economic life of the plants.

cent. higher when synthetic rubber is used. Again, the densities of natural and synthetic rubber differ, that of the latter being somewhat higher, so that a tyre of a given volume requires a greater weight of Buna S than of natural rubber.

Far more important are the qualitative differences in the use of natural and synthetic rubbers, which can be best expressed in terms of the life expectation of the manufactured product.¹ In this context it should be remembered that the cost of crude rubber is only part of the cost (and *a fortiori* of the selling price) of the final manufactured article. Accordingly, the use of a more expensive raw material will be found profitable if the service life of the manufactured product is prolonged. The special purpose oil-resisting synthetic rubbers show this best. The life of certain products in which the limiting factor is the life of the rubber used (*e.g.*, petrol hoses) may be so greatly lengthened by the use of Buna N or Neoprene that the saving will probably exceed any likely additional cost of these rubbers over the natural product. But while these rubbers present an extreme instance, the same principle is at work in the competition between Buna S and natural rubber. The following equations summarise the main considerations affecting the competitive position of synthetic and natural rubber in tyre manufacture.

Tyre casing based on natural rubber	Cost in pence
Cotton C lb. @ c d per lb.	... ... Cc
Rubber R lb. @ r d per lb.	... ... Rr
Other ingredients ...	... ... A
Labour ...	... ... L
Total cost = (Cc + Rr + A + L + Z) d.	

Tyre casing based on synthetic rubber	Cost in pence
Cotton C' lb. @ c d per lb.	... ... C'c
Rubber (l-k) R' lb. @ r d per lb.	... ... (l-k) R'r
Synthetic kR' lb. @ p d per lb.	... ... kR'p
Other ingredients ...	... ... A'
Other expenses ...	... ... Z'
Total Cost = (C'c + (l-k) R'r + kR'p + A' + L' + Z') d.	

C', A', L', Z', are all functions of k, which is the proportion of synthetic rubber used.

An important instance of the higher costs of 'other ingredients' in the use of synthetic rubber results from the necessity of a partial substitution of rayon for cotton in the manufacture of lorry and bus tyres.

¹ In some minor uses this presentation somewhat over-simplifies the picture without affecting the argument substantially.

Assuming that one natural rubber tyre casing gives the same performance as q synthetic rubber casings, then q is also a function of k, and if synthetic rubber is to be as valuable as natural rubber, the following relationship must hold :—

$$Cc + Rr + A + L + Z = q (C'c + (l-k) R'r + kR'p + A' + L' + Z')$$

from which by transformation

$$qkR'p = (C - qC')c + (R - q(l-k)R')r + (A - qA') + (L - qL') + (Z - qZ')$$

or

$$p = \frac{1}{qkR'} [(C - qC') + (R - q(l-k)R') + (A - qA') + (L - qL') + (Z - qZ')]$$

As the life expectation of the tyre varies with the proportion of Buna S in the rubber compound, the value of p is also a function of that proportion, conceivably exceeding the price of natural rubber at lower values of k, and falling to a fraction of the price of natural rubber at very high values of k.¹ It appears that single rubber compounds only are being used for the manufacture of tyres under the U.S. programme, and synthetic and natural rubbers are mixed in different ratios for light, medium and heavy tyres. Should it eventually prove economic to use separate compounds for tread and carcase² (*i.e.*, should this so improve the quality of the tyre as to offset a higher cost), then any given k would result in different, and almost certainly higher, values for p than if one compound only were used.

¹ A similar relation holds for the relative values of natural and reclaimed rubber in tyre manufacture. In small proportions, say up to 10-12 per cent., reclaim is almost equivalent to natural rubber, but at higher ratios its usefulness and value decline rapidly.

The age and abrasion resistance of Buna S compounds are superior to those of natural rubber compounds. On the other hand, their resilience, tensile strength and tear resistance are poorer. The lower resilience of Buna S tyres results in the generation of excessive internal heat when the tyres are driven at heavy loads, or over poor roads, or at high speeds; at high internal temperatures synthetic rubber loses strength even more rapidly than does natural rubber, and tyre failures are numerous. Moreover, the internal heat puts a severe strain on the cords of the tyre carcase, so that the cotton fabric rapidly deteriorates. These drawbacks are greatest in bus and lorry tyres. A composite tyre of natural rubber carcase and Buna S tread may possibly combine the advantages of natural and synthetic rubber. But this is as yet largely untried.

The equilibrium price, or rather price ratio, between synthetic and natural rubber, varies in different products (heavy, medium and light tyres being different products for this purpose). At any given state of technique it should, however, be possible to obtain the values of p as function of k for the most important rubber products, at least for the U.S.A., and by aggregating these to find the equilibrium synthetic/natural rubber price ratio, as a function of the proportion of synthetic rubber used. At present secrecy surrounds the actual figures, though it is known that for tyres the leading manufacturers have calculated the equilibrium price ratio as a function of the proportion of synthetic rubber used. No attempt has been made by the present writer to pierce the veil; first, because technical conditions are changing so rapidly that precise calculations may well be out of date by the time bulk supplies of natural rubber become available, and secondly, because the general outlines of the present position are sufficiently clear to allow some broad conclusions.

12. There is a measure of agreement on the prospective competitive positions of the special purpose and synthetic rubbers, and it is generally held that much of the American Neoprene and of the small Buna N capacity would survive in peace-time without any Government assistance. Their excellent oil, solvent and chemical resistance is likely to assure them a market. The American capacity for the production of these special purpose rubbers is around 90,000–100,000 tons a year. Even if the entire capacity were to continue in production, it does not follow that an equivalent amount of natural rubber would be displaced, since some of these rubbers would displace other materials. Against this, the longer life of some of the special purpose rubber products may decrease the demand in those uses. However, it is probably safe to say that these rubbers would displace not less than 30,000 and not more than 80,000 tons of natural rubber absorption in the U.S.A., chiefly in mechanical goods, rubber hoses and cable covers. These are substantial figures compared with the small pre-war consumption of these rubbers; industrial consumption (additional to direct

military uses) of these products has, however, expanded considerably during the last few years.

The position of Butyl is more uncertain. Production in 1944 was still small owing to various unexpected difficulties, while the bulk of the output was for specialised military uses, such as gas masks and barrage balloon coating, which do not give much guidance to the peace-time uses of this synthetic rubber. Owing to its impermeability and expected low cost of production, Butyl has been regarded as a potential competitor of natural rubber in inner tubes. The prospective supply price of natural rubber suggested in section II is, however, appreciably below the forecasts of Butyl costs and its large scale use in tubes is accordingly improbable under competitive conditions. Rubberised fabrics are likely to be the chief outlet for Butyl; before the war these accounted for about 1½ per cent. of American absorption (6,000–8,000 tons).

13. By far the most interesting and important issue is that of the competitive position of Buna S and of natural rubber. While details are not available, it was stated in 1944 by one manufacturer that for bulk use in tyre manufacture the value of Buna S was still appreciably below that of natural rubber, and that if the cost of Buna S to the manufacturer was around 15 cents per lb., natural rubber had to be at, or over, 18 cents to justify the use of the former. At the time of writing (February 1946), the leading American trade journals still frankly admit that in large scale use (especially in tyre manufacture) Buna S is still inferior to natural rubber, an opinion which seems to be shared by both British and American manufacturers when not addressing popular audiences.

It thus appears that so far the superior abrasion and oxidisation (age) resistance of Buna S has been insufficient to offset the lower resilience, adhesiveness and interior tensile strength of Buna S compounds. Somewhat unexpectedly, Buna S has also so far been found to be more variable than the plantation product, whose variability had been frequently criticised by manufacturers.

The compounding of synthetic rubber is, however, in many ways still on an experimental basis and substantial

improvements are certain. It was argued in section II that the plantation rubber industry is still in its infancy quite as much as the synthetic industry; but this similarity does not extend to the compounding of natural and synthetic rubbers. Rubber chemists and technologists possess forty years of experience with the plantation product, against less than five years with synthetic rubber. It is sometimes implied by protagonists of natural rubber that its superior qualities over the synthetic ("artificial") product are inherent in the nature of things. There is no ground for such a presumption, since even the most ardent believer in a benevolent Providence must hesitate before assuming that nature has so contrived the isoprene polymer secreted by the tree *Hevea Braziliensis* as to suit uniquely the requirements of the American motorist. The very versatility of natural rubber is more likely to be a liability than an asset in an era of functional specialisation. With much further progress in the technique of producing, compounding and processing the synthetic material, even within the general field of Buna S, a whole range of specific rubber compounds could be developed, each of which might be superior to natural rubber in some particular use.¹

This, however, is not yet in sight. At present, natural rubber still has a comfortable lead on an equal price basis, and if over the next few years Buna S and the plantation product were to be marketed at approximately the same price, the latter would rapidly recapture the bulk of the market for tyres and general purposes.

IV

14. The argument of sections II and III suggests that within a very few years of the restoration of the producing territories, plantation rubber could be produced at substantially lower costs than Buna S, even assuming a very substantial rise in estate wages, and a further significant measure of cost reduction in synthetic rubber, and without allowing for the effects of further technical progress (beyond a much

¹ It may, however, also prove possible to endow natural rubber with various special characteristics.

wider adoption of improvements already realised by 1941) in plantation practice. It is probable that the plantation product could be delivered in America at about two-thirds of the prospective post-war costs of Buna S. This assumes, however, that price competition will be allowed, and that full advantage will be taken of known advancements in plantation technique. Moreover, at equal cost to the manufacturer, natural rubber is much preferred. The considerations imply that if it were intended to maintain in commercially profitable operation the bulk of the general purpose synthetic rubber capacity in America, the tariff or subsidy would have to be much higher than is often believed, and would have to be at an *ad valorem* rate of 40–50 per cent. at least.

15. It is not proposed to review here the various factors which may influence the important political decisions which will have to be taken in America. At present, there is widespread support for what may be called a moderate policy for synthetic rubber. Its advocates concentrate chiefly on the defence aspect of domestic rubber production. They point out, however, that a recurrence of the 1941-44 rubber crisis could be avoided without the domestic production of all, or of the bulk, of American requirements. The general suggestions are for the maintenance in the U.S.A. of a large revolving physical stock of rubber, equal to at least one year's absorption, and preferably to be expanded at times of international tension, together with the continued operation of, say, 150,000–200,000 tons capacity of general purpose synthetic rubber, if necessary with the aid of a government subsidy, and with the maintenance of a further reserve capacity capable of resuming operation at short notice.¹ Organised co-operative research into the production and processing of synthetic rubber is also advocated. It is clear that these measures, together with the experience gained during this war—notably the necessity for early action in times of danger—would provide ample security. A policy along such lines would also put a ceiling on rubber prices and ensure that the U.S.A. could not be charged exorbitant prices for its rubber imports, which would remove

¹ Maintenance in "apple-pie condition" is the term generally used.

another cause of American apprehension. It is impossible to foretell how far these views will prevail. The failure of synthetic tyres under exacting service conditions (especially at high speeds) may prove the most potent influence in favour of a liberal policy.

16. Meanwhile, in their price policy for rubber, the British authorities will be faced with conflicting claims for some time. The producers are pressing for high prices, and the country's great need for dollars, points of course, in the same direction, particularly during the period of restocking.¹ There are also important political considerations in favour of high prices. On the other side, there is the important point that a low price would throw into clear relief the competitive strength of the plantation product against synthetic rubber, though this demonstration may perhaps be deferred for some time.

¹ On a longer view, the dollar shortage may endow the high-cost estates with a useful purpose in the post-war era. For while consumers may be prepared to pay 10d. or 1/- per lb. for natural rubber, if they are told that this is no more than "the average cost of efficient producers and a reasonable return," they might refuse to pay 7d., if this included an export tax of 2d. or 3d., with only 4d. or 5d. going to the producer, arguing that they were being fleeced by the British and Dutch Governments. The high-cost producers may enable this country to obtain more dollars in a form which might be less reprehensible to consumers than if they were actually being charged less for the rubber, but this smaller price included a substantial tax (although this may not apply so strongly if the supply price were inflated by charging higher rents or paying higher wages). This point is, of course, relevant only if there is no need to supply rubber at the lowest possible price. This will hold if there is an appreciable competitive margin in favour of the natural product, or if a regulation scheme is established embracing both natural and synthetic rubber.

P. T. BAUER.

Second Thoughts on the British White Paper on Employment Policy¹

1. When the White Paper on Employment Policy was published in May 1944 I think the overwhelming majority of British economists were excited, and indeed relieved, that the document (supported by all the political parties in the then Coalition Government) had finally seen the light of day. Its first words seemed heavy with meaning—‘the Government accept as one of their primary aims and responsibilities the maintenance of a high and stable level of employment after the war.’ Here was the formal and official acceptance of the Keynesian doctrine. Here was a technique for preventing mass unemployment which committed no one to any particular political creed and was applicable under different forms of social and economic organisation. Most economists were conscious, of course, of the sketchiness of some of the details of the policy, of the evidence, at some points, of compromise with the errors of the past and, indeed, of the fundamental inconsistencies of some parts of the argument. But the important point seemed to be that the Government had finally thrown off the view, expressed in the British Treasury Paper of 1930, that employment could not be expanded by public policy.

2. I still feel that the White Paper on Employment Policy is one of the most important declarations on economic matters ever made by a British Government. But I must confess the lustre of that document and of its publication day have become somewhat dimmed. I think there are many reasons for this.

(a) The present pre-occupation of my country is with an extraordinary shortage of labour, with a dearth of investment goods, with a potentially inflationary position which makes the problem of unemployment seem remote and of little urgency.

¹Read in New York on June 7th before the Twenty-fifth Anniversary Meeting of the National Bureau of Economic Research.

- (b) The meaning of the White Paper has been misunderstood in some quarters. It is believed, for instance, in some circles that the White Paper implies that employment cannot be maintained at the full unless the State intervenes with detailed plans and programmes for regulating the activities of industries and individual businesses—an attitude for which, in my opinion, the White Paper provides no support. The White Paper was concerned with controlling the economic weather, not in telling each person individually when he should put up his umbrella.
- (c) In the White Paper there were some obscurities which, in the two years that have since elapsed have not been cleared up, and promises of further action and enquiry on which no subsequent report has been made to the public.
- (i) Great emphasis was laid in the Paper on the danger to a policy of full employment of industrial monopoly. A promise was made that 'the Government will seek power to inform themselves of the extent and effect of restrictive agreements, and of the activities of combines; and to take appropriate action to check practices which may bring advantages to sectional producing interests but work to the detriment of the country as a whole.' So far as the public is aware no special measures have been taken to implement that undertaking.
- (ii) The obscurities of paras. 74-78 of the White Paper, as to how far the Government should go in deficit financing, have not been cleared up although here perhaps the statesman and the administrator may be wise in not taking hurdles until they have to be taken. It will be easier to reach final commitments on the doctrines of functional finance of Mr. Lerner

and Professor Polanyi when Mr. Terborgh and Professor Hansen have got a little nearer agreement.

- (iii) Further examination was promised in the White Paper of certain advanced measures for creating employment: such as greater variability in taxation levels; the regulation of hire-purchase transactions and the placing of Government orders for consumer goods. No results of this further work have been published.

3. It may be unreasonable to expect new ideas to develop and new commitments to be made with any great speed in plans which will certainly not need to be put into operation for a year or two. But, having now forsaken an office for a study, the permanent marriage of theory and practice in employment policy seems to present more difficulties than it did at one time and certainly success calls for further research into many dim and perplexing corners of the economic and administrative mechanism.

These are the subject of my paper today.

4. Before, however, giving to you my catalogue of problems and of subjects on which I wish we knew more I make two general preliminary comments about them:

- (a) I think it is to be assumed that British policy and technique regarding the maintenance of employment will be based on 'the national income approach.' It is in terms of national income that the British administration has learnt its economics in the past few years. It is in those terms we think of our problems. It is in those terms we will solve our problems if they are to be solved. By the 'national income approach,' of course, I mean the procedure of making the best possible forecast for a period ahead of the national income and the various items of national expenditure—the Government being prepared to supplement private aggregate demand

if aggregate expenditure threatens to be insufficient to maintain full employment. I mention this point because it is arguable, for reasons I will return to later, that in the 'national income approach' we are trying to be too clever.¹ It may be that it would be safer, and in fact more truly scientific, if we simply watched the unemployment index and then tried to do the right things after the event instead of engaging in the task of creating a national balance sheet for a forthcoming period with every item in that balance sheet a matter of estimate.

- (b) Most of the problems of maintenance of employment which I shall mention arise from the fact that the policy of full employment involves the danger of inflation. It is unfortunate but inevitable that the fattest fish are caught nearest to the rapids.

II. THE PROBLEM OF THE TARGET

5. The first of my problems is what level of unemployment we have in mind when we speak of full employment or of a high and stable level of employment. This issue has been brought sharply to a head in Great Britain by Sir William Beveridge who, in his recent book, *Full Employment in a Free Society* claims that an average of 3 per cent. unemployment is sufficient to give the economic system sufficient elbow room within which to carry out its essential adjustments. Other writers, with whom I am in agreement,² believe that this is an impossibly high standard of achievement to set ourselves. They point out that, even before 1914, the average rate of unemployment was at least double the Beveridge

¹There are two very sobering facts to which it is worth while drawing attention. The official estimates of the probable peak of unemployment in the United States during the transition period proved to be very wide of the mark. In Great Britain, in the year prior to the end of the war in Europe, economists in official positions were evenly divided as to whether the transition period would be one of a shortage or of a surplus of labour. Half of them, that is to say, proved to be wrong.

²It is significant that unemployment in Great Britain has already reached 3 per cent. although there is an acute overall shortage of labour.

target and much more than double it between the wars. They further point out that the conditions of the post-war world may tend to increase the minimum of frictional unemployment; the widespread extension of the Social Services may reduce incentive at least at the margin; the aging of the population may reduce mobility; the rising standard of living and improvement of individual taste may mean a greater number of minor discontinuities in the manufacture of consumers' goods; the tendency for capital equipment to become more specific may multiply the short period^{*} dislocations in the labour market and so on.

6. Behind this clash of opinion as to the target lie two other considerations which are much more fundamental. The first is bound up with what is meant by an employment plan. The White Paper clearly envisaged that estimates should be made of what was likely to happen to national income and the various items of national expenditure, assuming that the Government pursued a normal financial course; that the deficiency or surplus of national expenditure should then be dealt with by specific Government intervention of one kind or another but that, at all times, the Government action should be sufficiently tentative and its weapons sufficiently flexible to enable it to adjust its own activities if, in fact, its estimates of aggregate private expenditure proved unsound. Clearly the margin of error in conducting such a policy is not inconsiderable.¹ Sir William Beveridge, with his associate, Mr. Kaldor, have a different conception of the employment plan. Having made their forecasts of private expenditure and having decided upon the appropriate level of Government expenditure they would seek to make the forecast come true by exercising controls for that purpose over the economy as a whole. (I feel that if the Planners could distinguish between a rigid plan and a forecast, and more sternly resist the inevitable

¹Is it reasonable to suggest that the British Government should have a public trial of its economic forecasting by publishing now its estimates of Income and Expenditure for 1947? A great deal might be learned from the failure or success of this trial. It would awake public interest and enable economists to make their contribution in the improvement of the estimates.

temptation to turn a forecast into a plan, liberty in the world would be much safer than it is at the moment). But whatever may be said on other grounds against the Beveridge-Kaldor approach, it probably reduces the margin of error in the policy of keeping everybody in a job. So that the target we are looking for, the safe minimum distance at which we can operate from inflation, is indeterminate. It depends upon how many controls the people will tolerate, what their choice will be between degrees of freedom and points in the unemployment index.

7. The second doubt I have about the target is more technical. If we aim at too precise a target is there not a danger that the margin of error in the statistics collected for the 'national income approach' may be greater than the 'gap' between income and expenditure we are seeking to fill? I always felt during the war that a lot of useless, if not positively mischievous, policy decisions were made, particularly as regards labour allocations and stocks, because the policy was worked out to finer limits than was justified by the accuracy of the statistics upon which that policy was based. No engineer would try to work to thousandths of an inch if his gauges recorded only to tenths of an inch: I fear the economic statistician, under pressure from the statesman, is not always so scrupulous. It is obvious that the danger of making economic 'howlers' increases with violent progression as we approach the limiting position. I content myself with two illustrations. An estimate of the employable population is crucial in the national income approach. But I do not think we know a great deal about the forces which determines employable population. If wages increase more people may be tempted to work; on the other hand many workers (particularly married women) may then be inclined to drop out of employment altogether. Experience in my country suggests that taxation policy may have a marked, though not always a predictable, influence upon the number of people willing to work. Similarly with productivity, we cannot with safety accept the experience of the past as a secure basis for forecasting. Our recent experience in the coalmining and

other industries suggests that increases in wage rates and high levels of taxation, or even the form of the taxation, can play queer tricks with output per head.

8. On this matter of the target, therefore, I would draw two conclusions :

- (a) that we need to know more about the minimum level of unemployment. I think a detailed statistical examination of past experience of friction in the labour market, of the effects of wage changes and taxation upon the supply of labour and productivity would amply justify itself.
- (b) that, in the meantime, we should recognise the crudity of our measuring instruments and not set too narrow a margin to the control of expenditure. Nothing is more likely to bring the new economic doctrines into disrepute than the disillusionment that may come to the people if hopelessly optimistic views are allowed to gain ground concerning the accuracy of control guaranteed by the new methods.

III. THE IDENTIFICATION OF STRUCTURAL CHANGE

9. If a policy of full employment is to go along with a policy for a high¹ standard of living (and the two are by no means synonymous) we must take care that the measures for keeping people in jobs do not reduce the rate of technical progress or the general flexibility of the economic system by which resources flow to the points of highest return. That immediately poses a most prickly problem. How are we, in practice, to distinguish between what are usually described as "structural" changes in the system and those changes (cyclical or sporadic) from which recovery can normally be expected without any serious modification of the general economic pattern? The question cannot be avoided. For in the former case the right policy is to take the medicine boldly, get the changes carried through quickly and, in these circumstances,

¹By a high standard of living I mean as high as is consistent with the native ability, the natural resources and the capital equipment of a community.

the maintenance of total expenditure has only a limited part to play and creates special dangers of inflation. In the second case, the maintenance of expenditure is the obvious remedy. Can we put our finger on some groups of unemployment and say these represent unemployment attributable to permanent changes in demand or in technique? Could we, for example, have foreseen in 1924 that the cotton industries of Great Britain and the United States were destined to show a permanent decline in employment in the subsequent fifteen years?

10. It seems to me vital that the economic scientist must strive to provide some objective basis for the decisions to be made in this field by the politician and the administrator. For it is precisely here that the full powers of vested interests, of easy-going optimism, of political escapism will be brought to bear to justify doing nothing or doing precisely the wrong things. In an industry confronted with real structural changes the employer will be inclined to argue that if wages can be reduced a little all will be well, the wage earner that if the employer were only a little more efficient all would be well, the statesman that if both will work a little harder all will be well. And the upshot can so easily be a non-liquidating restriction scheme which puts off the evil day only at the expense of making it more evil when it arrives.

11. I suppose the crucial query here is : Can a declining industry not a monopoly, be prosperous? Can an industry suffer a relative shrinkage without creating all those forms of social distress in re-adjustment which so frequently have turned men's minds towards worse than useless restriction schemes ? I think it is safe to say that, in an economy not in full employment, the answer is no. But what is the answer in an economy enjoying a brisk general demand for labour ? On this, an analogy (dangerous as analogies are) often recurs to me. A man can grow old and still remain healthy within the limits of his dwindling physical powers. Why not an industry ?

12. I come, therefore, to another batch of questions on which I would like to see more informed answers. The first of these concern the future. If a policy is successfully pursued

of maintaining high demand for labour would this (a) increase or decrease the frequency of structural change and (b) facilitate or render more difficult the process of re-adjustment to a given degree of structural change ?

13. Would the general buoyancy of demand make business men readier to exploit technical improvement ? Or would the reduction of cyclical risks make the risks of innovation loom larger in the mind of the business man ? Would we slow down the rate of technical development if the business man had rarely if ever to face the problems of depression ? Would new industries less rapidly spring up if there were never again a pool of surplus cheap labour which, at least for a time, can be exploited ? Would new ventures be less frequently risked if the employer could not rely upon some flexibility of wages to cover up any mistakes in his own calculations ?

14. For any required degree of structural change, would a period of high stable employment make labour more mobile, because of the absence of the fear of unemployment or would it reduce mobility by creating the impression that the State can deal with unemployment without the individual exercising any initiative ? Would full employment, by preventing a business or industry from meeting its problems by cutting wages (since it would then lose its labour quickly) sharpen the pruning hook of competition and thus speed up natural economic re-adjustment ?

15. I think we might more confidently approach some of these questions if we knew more of what has happened in the past. We have had some statistical and economic analyses of the pace at which industries expand but much less has been done regarding the decline of industries. In the light of the experience of industry in the past half-century can we say that competition will bring about industrial re-adjustment as quickly as is socially desirable ? Or is it true, as is generally believed, that such changes go on far too slowly in what is usually described as ' a long drawn-out agony .' I would like to see a detailed analysis of the pace of industrial change in Great Britain since 1890 and an examination of the causes of it. I fancy this would disturb many existing conceptions on

this subject. I would like to see some comparative studies as between countries of industrial re-adjustment : for example, a comparison of the history of the cotton industries in New England and Lancashire since 1900 is crying out to be done. I do not pretend that such long-period studies will be easy. I recognise that they would bring the investigator sharply up against that heart-breaking question : What is an industry? I am sure we would find that many industries in the nineteenth century changed in everything but name thus destroying the comparability of statistics. I agree that it will be difficult to isolate the consequences upon structural re-adjustment of changes in tariff policy, of restriction schemes, etc. But complex as are all such difficulties, they are less intractable than those involved in deciding, *before the event*, for the purpose of a sound full employment policy, which changes in the economic system are permanent structural changes.

IV. THE PROBLEM OF FOREIGN TRADE

16. In many ways what I have said regarding structural change applies with special force to our problems of foreign trade. But even if consideration be confined to what may be regarded as normal oscillations in our foreign commerce there are awkward obstacles to surmount in maintaining full employment. Here my doubts are mainly those which have been expressed by others. Sir William Beveridge has established¹ that during the nineteenth century export trade tended to be the initiating element in cyclical movements. E. A. G. Robinson has pointed out² that between the wars the variations in British employment in the export trades was probably greater than the variations in employment due to fluctuations in home investment.

17. I think it is fair to say that none of the recent British writing on the subject of full employment has faced up squarely to this issue. The White Paper itself really side-stepped it. For it concerned itself with the need for a high *average* level

¹*Full Employment in a Free Society*.

²*Economic Journal*, April 1945.

for British exports and not with an export trade free from serious fluctuations.

18. The dilemma here has perhaps been sharpened by the return to power in Great Britain of a Labour Government. For to those who are attracted towards the idea of a planned economy as the only sensible way in which a community can be master of its economic destiny there is something strangely inconsistent, if not positively exasperating, in the thought that the home economy must depend upon the uncontrolled movements of world trade. And yet I suspect that the vast majority of people in Great Britain subscribe to the view that only through much greater freedom in world trade can Britain hope to attain the average level of exports necessary to prevent a decline in the standard of living.

19. There may, in fact, be a fundamental choice confronting my country. How far are we prepared to accept increased fluctuations in exports in order to increase the average level of exports? I do not know how the choice would go if it had to be made consciously. There is, as yet, no indication of any defined policy. But it may be a straw in the wind that the Parliamentary Secretary to the Board of Trade admitted, when discussing the taking over by the Government of the Liverpool Cotton Market, that some part of our invisible exports would thereby be sacrificed, but, he continued, "remittances of this kind are essentially speculative, and therefore, are unreliable."

20. For the student of the economics of full employment however, the task is to understand more fully the links, in the British economy, between the domestic market and the export market. I suggest there are serious gaps in our knowledge of facts and of mechanisms

- (a) I know of no adequate explanation for the fact that before the war fluctuations in British exports normally preceded movements in the trade cycle and may therefore have been an initiating cause. I think a detailed analysis is called for of British foreign trade during the nineteenth century to

determine whether what Sir William Beveridge has discovered is a statistical accident or whether there is sufficient generality in its truth, when individual export commodities and markets are studied, to render it much more than a statistical accident.

- (b) Post-war British export trade is likely to be very different in constitution from trade before the war. The drive for enlarged exports, associated with the inevitable decline of the older staple exports, inevitably means a greater diversification of the goods sold abroad. Will this lead to greater stability in our total export trade from year to year and will it mean that any decline in exports, because it will be more widely spread industrially and geographically, will be more easily offset by a policy of domestic expansion?
- (c) Are there reasons for believing that, if increased collaboration between the nations results in a considerably expanded volume of world trade, then, given the probable constitution of that trade, fluctuations in exports would be smaller than in the past.

V. THE PROBLEM OF WAGE STABILITY

21. If a policy of full employment ever drifts into the frustration of inflation my guess would be that the immediate cause will be intemperate wage increases. Not so much, perhaps, because shortages of labour increase the bargaining power of the unions as because, in a period of such shortages, employers are inclined to lose their heads and force wages to unduly high levels. The processes by which wages are moved up are complex but the experience during war in Great Britain suggests that one de-stabilising element is this : the employer recognises that he must retain, at all costs, his skilled key personnel ; without them his other workers become valueless. Wages in this group, therefore, may rise very markedly. But if there is a strong tradition among trade unions in favour of

the retention of established wage differentials between classes of workers the sharp increase in the monopoly value of key personnel tends to transmit itself to all classes.

22. The White Paper referred to the wages problem in language which I fear others will regard as a typical illustration of good old British muddling, but the British would probably claim as an example of their sure intuition in practical affairs and their healthy suspicion of any too rigid application of cut and dried principles. The White Paper says "Action taken by the Government to maintain expenditure will be fruitless unless wages and prices are kept reasonably stable . . . it will be essential that employers and workers should exercise moderation in wage matters so that increased expenditure provided at the onset of a depression may go to increase the volume of employment." But "there must always be room for the adjustment of wages . . . there must be opportunity for the removal of anomalies in the rate of remuneration of different grades and categories of workers. The principle of stability does mean, however, that increases in the general level of wage rates must be related to increased productively due to increased efficiency and effort."

23. The strict economic logician is sometimes contemptuous of policy couched in such vague phrases. But in its defence I would remind you that it was in terms of ill-defined compromise that, during the war, the British performed something akin to an economic miracle in re-distributing their labour swiftly and in evoking enormously increased exertions without any dislocating rise in general wage rates.

24. There were, however, special features of the war economy which will help to explain this success.

- (a) In war-time comprehensive economic control of itself (particularly rationing and high taxation) weakens the demand for increased wages. People fairly rapidly get tired of saving and of acting as a post box through which their wages are sent to the Treasury. But controls of this severity cannot be continued indefinitely if incentive is to be retained.

- (b) During the war the British public imposed upon themselves some odd practices of self-deception—such as that of watching the official cost-of-living index number and pretending that this measured change in the cost of living—which surely cannot be regarded as permanent.
- (c) The British Government, by subsidising food and other articles very heavily, kept down the cost-of-living index number. These subsidies are clumsy and inequitable and it is already obvious that they will have to be reduced by degrees.

25. There are other good reasons for supposing that the present system of wage adjustment will be fully tested by a policy of full employment. The White Paper, as I mentioned a few moments ago, declared that "increases in the general level of wage rates must be related to increased productivity due to increased efficiency and effort." Putting this more bluntly, we may ask : Is there any way in which we could guarantee that average wage rates would not increase by more than (say) $1\frac{1}{2}$ per cent. per annum, year in and year out?¹ On that I have the following comments :

- (a) The wage system is, at least for the present, very rigid. For many years before the war we were drifting into the general acceptance of the idea that wages can go up but can never go down. For the past seven or eight years, with the pre-war armament boom and the war itself, the number of instances where *wage rates* have been reduced must be very small. It may be that, in a system of full employment, this rigidity will decline, since workers may, to an increasing degree, meet wage reductions by moving to a new job, and therefore be disinclined to fight wage reductions so energetically. But that change in attitude will not occur immediately. Clearly it will be more difficult to limit to $1\frac{1}{2}$ per

¹Of course this $1\frac{1}{2}$ per cent. could be increased if it were possible to contemplate re-distribution of returns between capital and labour which did not disturb the total product of industry.

cent. per annum the upward general movement of wage rates and yet bring about the appropriate distribution of labour, if some individual rates must go up but no rates go down than if rates can move easily in both directions.

- (b) The British Government has quite firmly rejected the suggestions that have been put forward in some quarters for a 'national wages policy.' They prefer to leave wage fixation to the traditional process of bargaining between the two sides in each industry. But, for better or worse, the Government cannot refrain from exercising its influence to bring about an increase in wage rates in certain directions. For example, in Britain we are committed to what is elegantly described as 'a healthy and well-balanced agriculture' and the immediate food problems of the world re-inforce the case for agricultural expansion. This policy, in effect, makes inevitable the raising of agricultural wages to bring them more into line with wages in other industries. Or, another example, the present Government has committed itself to a measure of 'planning.' Now, as the President of the Board of Trade said in the House of Commons on February 27th 1946: "No country in the world, so far as I know, has yet succeeded in carrying through a planned economy without compulsion of labour. Our objective is to carry through a planned economy without compulsion of labour. The general idea is that we should use a number of controls, in order to guide production into the necessary channels, according to the plan we have formulated." Clearly one of these controls would be wage adjustment. In our country, therefore, we are likely to have a 'hybrid' system of wage control. The Government will intervene, on occasions, to try to clear a particular labour bottleneck by using its influence to have wages raised. Over the broader field of industry the established

process of collective bargaining will operate with the workers using, as one of their guiding principles, the maintenance of the traditional differentials within the wage structure. I cannot help but think that this 'hybrid' system will exercise a powerful levering influence on the wage levels as a whole.

- (c) There is a third factor which, to my mind, is likely to exercise an upward pressure in wage rates in Great Britain in the next few years. There has for some time been a public campaign for increased production per man-hour in British industry. That has led to a demand for extensive capital re-equipment. No one would deny that increased efficiency at this, as indeed at all times, is much to be wished for. But the campaign has led to the assumption that increased efficiency and increase of production per man-hour are the same thing, *i.e.* that capital costs can be ignored. There seems to be a popular chain of reasoning which, so far as I understand it, runs thus: If we can increase output per head then wages can be increased. The way to increase output per head is to re-equip industry. If wages can be increased then employers will be forced to re-equip because they will seek ways of keeping down labour costs. Therefore wage increases are positively helpful in the process of reconstruction. I think this sort of reasoning is the more likely to lead to errors in action because the British Government, for many reasons, but particularly because of the enormous National Debt, is inevitably committed to a policy of low interest rates which, whatever its other advantages, deprives the rate of interest of a part of its normal function of acting as one of the most important stabilising prices in the system.

26. In these matters I think there is scope for fact finding by the student.

- (a) Whilst there has been much enquiry into the facts, and the causes, of changes in price structure there has been much less work done, at least in my country, upon the changes in the wage structure. Do the facts support the view that wage rates are less flexible than they used to be? If so, what are the causes? Are these causes such as are likely to be increased or decreased by the success of a policy of full employment?
- (b) I think it would be well worth while to make a detailed and comprehensive examination of the rationale of British Trade Unions in regard to wage changes. Now that we have officially accepted the policy of full employment, the British Trade Unions may well be compelled to think hard regarding their future policy. A purely objective analysis of their past procedure may be a useful starting point for their thinking.
- (c) In particular, if in my country we are for a time to follow the double aims of full employment and a measure of planning, it seems vital to decide just how far, and how quickly, re-distribution of labour can be brought out by wage differentials and here an examination of the past is the only objective base from which to judge.

VI. ADMINISTRATIVE AND POLITICAL FACTORS IN A FULL EMPLOYMENT POLICY.

27. I come finally to a question which might appear to be outside the ambit of the economist were it not for the fact, as I believe, that economic and administrative problems are now becoming so inextricably mixed that it is impossible to separate the two subjects.

28. I am not concerned so much here with the thought that a full employment policy will demand of statesmen a high degree of courage and skill in bringing the public to understand and accept measures which, in some quarters and at

some times, will be highly unpalatable. For in a 'planned' economy (even in an economy which is 'planned' only to maintain full employment) where freedom of speech still remains we can be certain that the Government will be blamed for everything which goes wrong. On each occasion when times are very good and incipient inflation threatens, the precautionary actions by the Government are bound to throw out of work *some* people. Those who suffer will find it odd that the Government should do this when all seems to be well. But I assume that statesmen will be paragons in courage¹ and in power of exposition.

29. I further assume that these statesmen will be provided with the best possible economic advisers who have access to full economic information. Let me be even more reckless and assume that these advisers will in fact always be in a position to give the right advice; *i.e.* they will always know what point in the trade cycle we have reached and what addition to national expenditure will be required in the forthcoming year to maintain employment at the full.

30. Given all this, however, there still remains a more subtle difficulty, essentially a task of administration which has to be overcome. It is the procedure by which an economic adviser can transmit to his political chief that peculiar combination of experience and intuition, which constitutes a sound economic forecast and transmit this delicate fabric of forecast to his Minister in such a way that the Minister can defend it with his colleagues, with Parliament and with the public.

¹It is important to recognise how much we are demanding of statesmen in this respect. Take, for example, British building policy. The Government is energetically increasing the building labour force up to 1½ millions in order to overcome the 'back-log' in houses as quickly as possible. But when the housing demand is satisfied will the Government face up to the need for a contraction in the building industry? Will they not be tempted to choose the alternative way out of deciding that, in fact, the housing demand is not satisfied and that the community needs an even higher standard in houses, schools, town halls, etc.—anything, in fact, which will keep the building labour force busy? Wherever the Government intervenes in order to plan the size of an industry they will surely be tempted to maintain demand to justify that size. That is to say, they may interpret effective demand in terms of their own earlier decisions.

31. I am convinced that I am not making a mountain out of a molehill here. Business men have to make forecasts of this kind and perhaps they rely too much on intuition and too little on knowledge. But for the business man it is sufficient to make the right guesses and to act with speed. He need not, on top of that, be fluent enough to explain why he reaches a particular decision or to spend time in justifying his decision. The fundamental administrative problem of a full employment policy is how best these essentially business decisions can be made by a bureaucratic organisation where reasons must be clearly set forth for each step, where the intangible balancing of pro and con (which can so easily go on within one head) has now to go on when several heads are working together and where these heads, if they happen to conflict, can waste the precious days when action is called for. Now I am not saying that all this cannot be done. I am the type of optimist who declares that so much is bound up with a successful employment policy that it has got to be done. But I do think that it is the most delicate and elusive task of administrative integration that any organisation has yet been called upon to perform.

32. It might at first sight appear that the economist or the economic statistician engaged in a University or a non-governmental research organisation can have little to contribute to the solution of this problem. I do not agree. It seems to me that, apart from the building up of a specific body of knowledge of the past which may throw light on current questions and thus limit the area of doubt, he has an important part to play in the development of concepts which reduce the complexity of the thinking required on certain subjects, which enable discussions to go on in a simpler form and, therefore, in themselves dissolve the kind of administrative difficulties I have mentioned above. Let me give two illustrations. The appearance of the concept of the net reproduction rate has contributed enormously to an understanding of the complex factors which determine the future size of the population and has, therefore, made it more likely that countries can arrive at population policies which command

general respect and co-operation. My second illustration is drawn actually from the field we are discussing today. I think in both our countries the absorption into general thinking of the idea of national income and the growing range and reliability of the available statistics of income have already had a number of important results. First, the public understanding of the economic system as a whole has been deepened and a relatively simple device provided by which the individual can set the national interest against his own private interest and thus increase the possibility of wise public decisions in economic matters. Second, it has made things easier for the statesman. Advice can be given to him in simpler terms. He can put forward to the public his policy in language more easily comprehended. He can, at need, justify a policy, which admittedly may have some minor drawbacks, in terms of a definable and accepted concept of the general interest. This is all to the good. But we are not at the end of the benefits which the ingenuity of the economic statistician can confer on us in devising simpler measures of essentially complex phenomena and thus opening up the way for that informed public participation in major economic decisions which the appalling intricacy of the subject has up to now forbidden.

J. JEWKES

Professor Polanyi's Full Employment and Free Trade¹

I

Professor Polanyi has a passionate desire for a society in which individual freedom has as full play as possible and he firmly believes that such freedom depends on a system of free competition and capitalism. This system, he sees, is gravely endangered by recurrent great depressions. Keynes, however, has shown that mass unemployment is not inevitable under a system of private capitalism so long as the State maintains certain general controls, that is, provides the necessary framework in which private enterprise is to operate. Polanyi thus urges that the state must maintain effective demand along the lines proposed by Keynes. His book is a general exposition of Keynesian theory and aims at spreading these ideas in the hope that this will assist in bringing about a full employment policy.

The importance of a general acceptance of an appropriate full employment policy cannot be exaggerated. The long time-lag between economic thought and action has often been noted but it is now clear that this interval must be shortened. The consequences of another great depression are too serious and Polanyi's attempt to hasten the application of modern theory is timely. In this country progress is being made. The fact that the Government in the White Paper on Employment Policy has accepted the responsibility for "the maintenance of a high and stable level of employment" is a great step forward. The renunciation of the old Treasury view that Government investment even in a slump cannot increase total investment and employment augurs well for the future. One does not expect in the event of another depression that the Government would sharply retrench public expenditure as in the slump of 1930-32.

¹ *Full Employment and Free Trade*. By Michael Polanyi. (Cambridge University Press, 1945. Pp. x+155. 8s. 6d. net.)

Professor Polanyi writes in his preface dated June, 1945, that he feels uppermost a sense of great urgency. "It seems very unlikely now that the United States will yet accept and resolve to apply effectively modern employment policies in time to avoid the next great depression, and nothing can then prevent such a depression from engulfing Britain and all other capitalist countries in their turn. And yet, would it not seem that one slight effort of thought, followed up by resolute action, could still avert the disaster; this perhaps final blow?" There can be no doubt whatever that it is of the utmost importance that the United States adopts an appropriate full employment policy, that the time-lag between thought and action is drastically reduced. It is to be hoped that the work of Polanyi and others will assist in solving this frightening problem. Loan agreements, international monetary and trade agreements are all important but of far greater importance is an effective full employment policy in the United States.

II

The first and longest chapter of the book contains Polanyi's exposition of the theory of full employment. Polanyi illustrates diagrammatically his main concept of a variable Money Belt determining variable levels of employment, the level of production expanding and contracting with the rise and fall of the national income expressed in money. The book is largely concerned with tracing the channels through which money is brought into or withdrawn from circulation by private individuals and public authorities. The problem of control is seen as the problem of controlling the money stream so as to maintain full employment. Polanyi points out that so long as the money which is removed day by day from circulation through the process of saving is balanced by the sums which are continuously spent on new investment, the width of the Money Belt will remain unchanged. The budget deficit, the expenditure of public authorities, which is not covered by taxation, is shown to have the same effect as expenditure on new investment. Emphasis is laid on the fact that a steady level of employment depends on the balance of two apparently

quite independent activities, saving and investment. The analogy used by Polanyi is that of two pumps acting simultaneously on the circulation of money—a sucking pump (savings) and a squirting pump (investment). The twofold aim of employment policy is then, "to adjust the two pumps so that their actions should balance, and to secure this balance at a level of monetary circulation sufficiently high to sustain a state of full employment, and not so high as to produce undesirable inflationary effects" (page 10).

The central principle of Keynesian economics is said to be the self-sealing gap between savings and investment in the form of counter-forces which set limits to the decrease and increase of the monetary circulation. Polanyi explains that the principles of the self-sealing gap remain in operation over all ranges of expansion or contraction of the national income, whether these occur below or above the level of full employment. The process of self-sealing is regarded as occurring fairly rapidly but Polanyi thinks that it is very misleading to consider savings and investment as a necessary identity. This is largely a matter of convenience and exposition. I myself prefer the *ex ante* and *ex post* type of approach. Polanyi should, however, have brought out here the fundamental difference between the provision of savings to equate fluctuations in investment when there are changes in the level of employment and real income (the most important single point in the *General Theory*) and the increased savings to balance increased investment after full employment has been attained. In the latter case the self-sealing gap is a very different thing and the equality of savings and investment is a market equilibrium which is associated with a fundamental disequilibrium. This inflationary process must either be stopped, in which case unemployment will ensue during the process of returning to an equilibrium distribution of resources between different lines of production, or continue until there is a breakdown in the monetary system. It is, of course, this type of problem with which the advocates of the doctrine of "forced savings" were trying to deal. The only exception to this is the theoretical possibility of increased money expenditure on

investment which is carried out in such a way that all prices are increased proportionately and there is no disturbance to the equilibrium distribution of resources.

Polanyi proceeds to explain the Keynesian concept of chronic depression owing to the rate of investment tending to fall with approaching capital saturation while the rate of saving tends to rise with increasing national income. The explanation of capital saturation on page 22 is curiously weak. He points out that the amount of renewals increases with the increase in total capital equipment and that there is a limit to what society may reasonably wish to take upon itself in respect of renewals, thus limiting the amount of capital it wishes to acquire. It is hard to understand why he did not deal with the question simply in terms of the declining marginal efficiency of capital. The tendency to chronic depression is then explained by the weakening urgency of additional business investment combined with the increasing preference for the accumulation of savings causing a gap which is automatically self-sealed by the downward pressure on national income. Polanyi believes that the condition of chronic depression has clearly prevailed for some time past both in Britain and in the United States. Thus the problem in the more highly industrialised countries of the West is not merely the elimination of trade cyclical fluctuations but the raising of the general level of employment.

There is now fairly general agreement that investment opportunities have at times been temporarily exhausted at the peaks of trade cycles. The problem of a permanent lack of investment opportunities in the sense of a long-run tendency for savers to try and save more than business and industry will borrow at any rate of interest at which the savers are prepared to lend is extremely complex. There is no doubt that it must be taken seriously, particularly in the United States. On the other hand, Polanyi, I think, goes too far in basing his whole work on the assumption of a tendency to chronic depression in this country. It seems dangerous at the present time to portray the economic situation of Great Britain as one in which the use of capital is rapidly becoming free. For some time to come the production of capital goods will be an alternative to the

production of consumption goods and the use of capital in one direction will limit its use in other directions. Control over the capital market will no doubt maintain low money rates of interest in order to keep down the interest cost of the national debt and for other reasons. Capital will, however, be scarce and there will be much misdirection of investment if the Government ignores the marginal efficiency of capital. How long this period will last depends on many imponderable factors apart from the immediate capital requirements for post-war industrial reconstruction and housing. The demand for capital will be greatly affected by the policy adopted with regard to social investment. The development of political and economic international organisation may well have an important effect on international capital movements. Taking the world as a whole, capital is still very scarce. There are great possibilities of raising the standard of living in many countries by increased capitalisation and Great Britain may lend abroad again on an important scale. On the other hand, increased equality of incomes would reduce the rate of saving at a given level of national income. The degree of scarcity of capital in Great Britain will be affected by all these factors and many others.

III

Polanyi's full employment policy follows from his explanation of the under-employment equilibrium. The gap at full employment, the gap by which savings exceed new commercial investment when "full circulation" is maintained, must be filled. This policy involves a budget deficit so that tax + gap = budget. Taxation is reduced, while public expenditure is maintained at what is considered to be the appropriate level in view of the national income at full employment, so as to create the required deficit. Polanyi says that private investment should not be stimulated or saving reduced (by increasing the equality of incomes) or public investment increased *in order to* maintain full employment. These decisions must be taken on their own merits. The point is formulated as the Principle of Neutrality, which states that employment policy should be carried out in a neutral form, that is, "in a way requiring no

materially significant economic or social action to accompany it" (page 29). Thus resources should not be used in particular ways as means of achieving full employment but monetary and budgetary policy should be adapted so that full employment is obtained along with the required allocation of resources between different uses. This is the right point of view. There are two main problems of economic policy, full employment and the allocation of resources between different uses. There is, however, one objective—full employment *with* the allocation of resources between different uses as required by the intentions of the public both in the collective and private sphere of economic life. Two main political decisions have to be taken in the field of public finance, a decision with regard to the degree of equality of incomes and a decision on the division between private expenditure (on consumption and private investment) and public expenditure (on current services and public investment). The maintenance of full employment in these circumstances will involve a given amount of deficit financing.

Polanyi states that a neutral policy of full employment is not simply a policy of tax remission and that the public expenditure to be envisaged is considerably greater than that which is undertaken in the usual depressed state of economic life. All the emphasis, however, is laid on tax remission, or the increase of taxation to prevent inflation, as the method of maintaining full employment. The increased expenditure will be in the form of increased private expenditure as a result of tax remissions. Here we have what has been described as a political decision and Polanyi neglects the consideration of other methods of achieving full employment. In fact a combination of methods will no doubt be used and they all need careful consideration. Polanyi, for instance, ignores the equalisation of income method with its complication of high taxation and consequent effect on the inducement to invest. Kalecki's modified income tax, discussed in *The Economics of Full Employment* prepared at The Oxford University Institute of Statistics, is brushed aside in a sentence or two and no reference is made to the use of a capital tax and death duties.

Yet the effect of Government policy on the inducement to invest is important. Further, the problems connected with increased public investment are not given sufficient attention, although there is a useful section on the absurd position in terms of the allocation of resources which would result from increasing public investment without increasing private expenditure at the same time.

IV

A further weakness in Polanyi's treatment is that he overlooks the importance of the mobility of factors of production when dealing with actual adjustments of expenditure to maintain full employment. It is true that the question of factor mobility does not require emphasis in the case of continuous deficit. Polanyi, however, admits that there will still be fluctuations in private investment although of a smaller amplitude. There is also the problem of fluctuations in the world demand for British exports, which is neglected by Polanyi in this connection. Variations of employment due to export were almost certainly larger than the variations due to investment during the period 1924 to 1938.¹ Polanyi is well aware of the importance of all countries pursuing effective full employment policies and the danger of a slump in the United States. Tax remission will not solve the problem of reductions in private investment and in the world demand for Britain's exports. Account must be taken of the immobility of the factors of production and the Principle of Neutrality must in the short run be partially given up for the sake of directing demand to the unemployed factors.

V

As regards the financing of the budget deficit Polanyi holds strongly that the deficit should be met by an increase in the supply of money which he calls the "employment issue," and that no Government borrowing should be associated with such monetary expansion. The total sums issued up to any particular date would not form part of the national debt but

¹ See review of Sir William Beveridge's *Full Employment in a Free Society*, by F. A. G. Robinson, in *Economic Journal*, 1945.

would merely be recorded as the total value of past employment issues. In this way the interest burden associated with deficit financing by Government borrowing is avoided. He argues that the Government is not borrowing resources which would otherwise be employed in one way or another but preventing resources from being unemployed. The issue of money for the purpose of maintaining full employment should not be considered in terms of borrowing at all. Indeed, it would be dangerous to do so, because the Government will engage on large constructional tasks merely to be able to show that the proceeds of loans have been invested and not consumed. Physical assets will thus be created which in fact involve the squandering of the resources of the nation.

The "employment issues" are regarded as tending to act as a permanent cure. As idle cash balances accumulate the rate of saving will fall to a level at which saving and investment are equal at full employment without further "employment issues." Too much must not, however, be made of this point as new issues of money will probably be required from time to time. Further, Polanyi points out that to suggest that additional issues of new money may cease to be required is a significant advantage, would be to countenance just those harmful prejudices it is important to eliminate.

There is no doubt that the prejudices to which Polanyi refers do exist, and that there is a good deal of mental resistance even amongst certain economists to the idea of financing budget deficits by new issues of money in order to maintain full employment. It is, however, a mistake to discuss the question of financing budget deficits by the issue of new supplies of money or by Government borrowing without relation to the rate of interest. The Government will have to decide on its interest policy. As Sir William Beveridge has stated, "The Government has to decide upon the rate it wishes to maintain and then to allow the savers to hold their savings in the form in which, with that rate of interest, they want to hold them. That is to say, the Government must offer long-term bonds and short-term paper 'on tap' so that savings can flow into

them according to the wishes of the savers."¹ To the extent that the public wishes to hold additional savings in the form of cash and bank deposits, there will be an increase in the supply of money associated with Government borrowing from the Central Bank and the commercial banks. Thus, the additional savings resulting from maintaining full employment by deficit financing will be held in the form of cash, bank deposits, bills and bonds of various maturity dates according to the preferences of the public. Some writers have objected to this policy because it involves the Government borrowing from the banks, at interest, savings which are in fact the result of Government action. The increase in bank deposits due to the public deciding to hold savings in this form will enable the banks to have an increase in their earning assets apart from the increase in cash reserves to maintain their customary cash reserve ratios. If, however, Government action tends to increase the profitability of commercial banking relatively to other business activities the Government can, if it wishes, offset this tendency by fixing legal minimum cash reserves. The Government will thus in effect borrow from the banks without paying interest an amount equal to the increase in cash reserves held.

The Government is able to pursue in this way what is regarded as an appropriate interest rate policy instead of issuing new supplies of money, the effect of which on the rate of interest is difficult to estimate. Sir William Beveridge, for instance, proposes a gradual long-term policy of reducing the rate of interest so that the appreciation in the capital values of all outstanding long-term money claims and durable capital assets is gradual and time is given to financial and other institutions which invest in Government funds to adjust their operations. As far as possible the policy of a gradually falling rate of interest should reflect the long-run position on the capital market of the approach to capital saturation. If the rate of interest is reduced at a greater rate than this the problem of capital control will be complicated and capital will certainly tend to be misdirected. Further, the lower the rate

¹ Sir William Beveridge, *Full Employment in a Free Society*, p. 339.

of interest in this country, the more difficult will it be to maintain an effective foreign exchange control with respect to capital movements.

VI

In chapters II to IV Professor Polanyi deals with Full Employment in Soviet Russia, Economic Expansion for War and Internal Problems of Full Employment. The Russian and war experience provide illustrations of the difficulties accompanying the establishment of full employment. The Government is seen to be faced with the difficult problem of having to choose the correct level of monetary circulation. This decision involves a compromise; the size of the national income in terms of money must be great enough to cause the fullest possible utilisation of the country's resources but, on the other hand, the circulation must not be raised to a point at which financial stability is endangered. "In fact, in normal times we should maintain stability with a reasonably safe margin, and not precariously fenced in by a network of regulations restricting the use of purchasing power" (page 87). The general problem of wage policy, the tendency to an excessive mobility of labour, the problem of industrial discipline, the danger of bottlenecks and local booms causing a runaway inflation are all important in this connection. Polanyi criticises the customary distinction between "structural" and "transitory" unemployment, but goes too far, I think, in attaching so little importance to what is normally described as structural unemployment. Polanyi's conclusion is that there must be residual unemployment of 3 to 4 per cent. unless there is to be inflation and monetary breakdown or alternatively rigid controls. He believes that compulsory direction of labour by the Government can be avoided if the full employment policy is carried out skilfully. A short reference is made to the new responsibilities of Government economists, but insufficient attention is paid to the administrative problems of full employment policy which remain to be solved. The whole question of the use of statistics, for example, as a guide to policy requires detailed study. It is important that reference to these administrative

difficulties is made in an "explanation for citizens" so that the general public understands the difficulties with which the Government will have to wrestle in the carrying out of its employment policy. In these chapters, however, Polanyi indicates the field of administrative or "practical" problems on which much thought is still required.

VII

There remains the important problem of Full Employment and International Trade which is discussed in chapter V. This problem might well have been discussed at greater length considering the importance of international trade fluctuations to the stability of the British economy and the recent rise of the new British protectionism and imperial economic nationalism. The maintenance of equilibrium in the balance of payments under free exchange rates and under the international gold standard is explained in terms of a highly simplified purchasing power parity theory with a reference to the international lending qualification. The discussion, in fact, requires the firm basis of the general theory of international price equilibrium.

Professor Polanyi realises the similarity between foreign and home trade but believes that international trade gives rise to certain special problems. This, I am sure, is the right approach and will be taken by all those economists who believe that the institutional environment is such that a fundamental disequilibrium in the balance of payments should be corrected by a movement in the exchange rate rather than by a change in relative price-and-income structures.

The difficult problem is to decide on the degree to which the international monetary mechanism should conform to or differ from the monetary mechanism which maintains inter-regional equilibrium of payments within a country. Polanyi, for example, takes the case of all countries of the world pursuing full employment policies but one country finding it necessary at a particular time to adjust its level of employment. He assumes that employment in Great Britain is increased by

1 per cent., which, in the circumstances of 1938, increases national income by about £40 million and imports by about £10 million. Such a disturbance to the balance of payments, he believes, "could not be readily abandoned for readjustment to the forces of the free market" (page 115). It is argued that a policy of allowing the rate of exchange to depreciate to the point at which the balance of payments would be in equilibrium would be irrational. This would not establish purchasing power parity but rather vitiate the parity which had existed before and cause an under-valuation of the currency. The use of under-valuation in this sense is very confusing and results from the over-simplification of the theory of international price equilibrium.

To Polanyi, the disadvantage of exchange depreciation as the method of adjustment in this case is that the "terms of trade would be falsified to the disadvantage of the inhabitants of the country which had expanded its circulation" (page 115). Concerted international government action is considered necessary in the form of support to the currency in excessive supply, culminating in the definitive cancellation of whole blocks of foreign balances, or the temporary application of tariffs by the expanding country. It may be admitted that large changes in conditions can cause such serious maladjustments that the process of adaptation cannot be left entirely to the price mechanism. Polanyi, however, goes too far in the case cited and abandons to a greater extent than he probably intends some of the principles of free trade. Surely, if a country increases its purchases abroad it is to be expected that the terms of trade will become less favourable. All that is required is to ensure reasonable mobility of short-term capital between countries so that the depreciation of the exchange rate is not too drastic during the process of adaptation to the new conditions. The more important practical case of the possibility of a large reduction in the world demand for Britain's exports and the problem of the adjustment required is unfortunately not considered in detail.

Polanyi concludes this part of his work with a discussion of the functions which a World Bank might usefully perform and the problem of intermediate arrangements while there is no world-wide agreement concerning the foundations of a rational employment and exchange policy. He emphasises that if the United States goes into a depression the effectiveness of any measures adopted by other countries is necessarily limited. He thus returns to the importance of our elaborating and spreading the principles by which economic expansion can ultimately be safeguarded everywhere. To this cause he has made a substantial contribution.

J. C. GILBERT.

A City Plan¹

Town planning is coming to be regarded as the characteristic function of the local authority. Forty years ago, the towns of England seemed to be converting themselves rapidly into large-scale trading concerns. But this trend has for some time now been halted, attention being turned rather to stripping local bodies of some of the trading rights they already possess. At the same time, they are increasingly becoming agents of the central government in developing the other services, with the special task of creating a local framework within which each may grow in harmony with the rest. This emphasis is to some extent a healthy one. Regulating the use to which its territory is put is central to the interest of a local community, where opinions may differ and attention vary regarding the particular services to be controlled by the council. In any event, it explains why the many large town planning volumes published in the last year or two have attracted considerable notice while, for example, the recent report of the Heyworth Committee on the Gas Industry (proposing to deprive local authorities of business worth over £17 million a year) has caused small concern.

The City of Manchester Plan has, like the others, already been the subject of a good deal of comment. Here it is intended to refer to a number of points which seem not to have had the attention they deserve, and where the Plan touches controversial ground. It should be stated that much of the detailed physical planning of roads, transport facilities, housing, and markets has been carried out with remarkable thoroughness and realism. In particular, the author's approach to the practical difficulties of re-developing old areas strikes one as decidedly superior to that of his predecessors. The Manchester Plan probably owes much of its special value in this field to being the work of the City Surveyor and Engineer himself. Attention should also be called to a pertinent chapter on the abolition of smoke. Amid the complexities of re-location,

¹ *The City of Manchester Plan* (prepared for the City Council by R. Nicholas, City Surveyor and Engineer). Jarrold, 1945.

zoning and "overspill," it is worth asking whether Manchester, even as it stands, would be so bad if it were not so dirty and whether it will ever be much better if it cannot be made cleaner? This seems in some respects the crucial issue.

Some of the economic and sociological prescriptions of the Plan appear less satisfactory. It claims to be based "on principles derived from a detailed physical and sociological survey" (p. 2), and there is evidence that the physical survey was thorough. But it is assumed perhaps too readily that a physical survey can provide the answer to economic questions; and the sociological survey was of very limited scope. The admission is in fact made later that reliance was placed mainly on "the accumulated store of sociological knowledge" (p. 19). A few opinions were collected locally but the conclusions have not been greatly affected by them. A more ambitious claim that the Plan has taken into account "that indefinable but unmistakeable spirit which is inherent in any old-established community . . . sturdy independence . . . common sense and sociability . . . a rich local colour . . . cosmopolitan groups" (p. 7) must be regarded as eyewash. "A monumental plan in the grand manner, with showy vistas and processional ways, would be totally out of keeping with the essentially practical character of Manchester." Monumental planning is unfashionable anyway and its rejection does not take us far. The fact is that the new Manchester will be for the most part indistinguishable from any other town-planned city with a civic centre, ring and radial roads, parkways, and neighbourhood units.

Some of the difficulties of long term forecasting are realised. "To the inhabitants of the compact town of 1800, the sprawling monster of 1850 . . . would have seemed as incredible as a modern corporation housing estate to the cellar dwellers of 1850" (p. 14). On the basis of existing trends, it is estimated that Manchester's population will fall by about 125,000 in the next thirty years, which the Plan agrees is subject to a considerable margin of error, particularly as it depends partly on the assumption that "the percentage rate of net emigration will return to the level of the decade 1921 to 1931" (p. 25),

when net emigration was 24,200. The fertility rate is expected to fall still lower than the pre-war level. On these assumptions, 98,000 houses will be needed in the same period to give each family separate accommodation and to replace houses built before 1900, over half the present total of 201,000. The nineteenth-century houses were mostly built over twice as densely as the modern standard, two-thirds of them already having been declared unfit for human habitation¹. This rehousing will involve an overspill (concentrated into the first twelve years) of 138,800 persons, who are to go to Wythenshawe and to a new town outside the present city boundary. The Plan lacks a clear picture of the distribution of Manchester's population when its initial rehousing programme is complete. But it appears that by 1980 about one-third of the population will live outside the old city.

The size of the movement is partly due to the low density standard Manchester is to adopt for its rehousing, the generous allowance for open spaces (7 acres per 1,000 compared with London's proposed 4), and the attention paid to the extensive dislike of flat-dwelling. But against this dislike must be set the (not-unexpected) upshot of an opinion poll: "in all zones there is a desire to move outwards, but not very far" (p. 21).² No doubt this conservatism arises largely from the desire to live near one's work, to satisfy which the author envisages a "parallel dispersal of work places" (p. 5). The Plan is inclined to minimise the difficulties of controlling industrial location, but assuming for the moment that these can be overcome, there arises then an important problem of priorities. Presumably the people who should move to the new areas are those specially suited to the work available, a criterion which suggests encouraging industrial and economic development to run a little ahead of labour movement, and giving priority to the housing needs of engaged workers. That will be more likely to minimise journeys to work and occupational maladjustments, but makes things difficult for the planners, for when

¹ 45 per cent. of Manchester's houses are without baths, in some wards 95 per cent.

² About 15 per cent. of those in slum areas wanted to go to Wythenshawe or beyond.

labour does move it will come from all quarters and leave behind no clear area for re-development. The other way may be called the "slum priority" method, to remove the inhabitants of a clearance area, hoping that they will not fit too badly into the new jobs if they get them, or not have too far to travel back to the old jobs. The latter has become more fashionable among housing authorities, partly in reaction from the exaggerated hopes placed on "filtering-up" in the early inter-war period, and partly from a desire to end class-segregation by transporting the poor to catch up with the fleeing middle classes. But we should not lose sight of its disadvantages, complicated as they are by the intention to expand in satellite-form; they have led indeed to a significant change of emphasis in the latest proposals of the Ministry of Town and Country Planning, mentioned below.

For industry, special zones are to be provided both in new and old areas, to which new firms will be directed and where existing firms "should be induced to migrate as their present premises approach the end of their efficient life" (p. 6). The majority of industrialists consulted "dislike the prospect of re-siting" (p. 238), though this did not apply to food and drink, clothing, woodworking and some of the smaller engineering firms. It apparently did apply to a large number of concerns in Miles Platting, principally cotton spinning mills, chemical works, tar distilleries, iron foundries and textile engineering works. Seventy-four of these concerns, replying to a questionnaire, stressed in different degrees the advantage of their present site in terms of availability of labour, linkage with other industries, convenience for raw material deliveries and for transport of the finished product. With regard to the last three, the author adds: "There is little doubt, however, that greater efficiency in all three respects could be secured for them in the proposed industrial areas" (p. 160). Of course it could—but the cost of doing it matters too.

Some doubt may be cast on the town planning view of the "efficient life" of a building. The Plan states: "No longer can industry afford to be encumbered by dilapidated premises

totally unsuited to a minutely organised sequence of production" (p. 7). Why no longer? Could a firm ever afford "totally" unsuitable premises? In what sense can an industry not afford to have old premises when it cannot afford new ones? For surely if it could afford new premises it would have built them. A concealed subsidy in the shape of public facilities below cost would help, of course. But one hopes that local authorities will set themselves severe limits to competition with one another in this field. As for the new firms, "the city must establish and maintain a balanced industrial structure" (p. 83). On the basis of locational indices, and on the assumption that all industries should be evenly spread through the country, the area is shown to be deficient in certain trades. Interesting, but this should not become a hurdle to be cleared before a new firm is allowed in, or an excuse for discrimination in facilities. Manchester has already distributed its eggs among a reasonably large number of baskets, as is shown by the tables on p. 229 and p. 234, and need not add balancing to its other preoccupations.

The existing industrial area amounts to 1843.9 acres¹ (including 73.5 acres at Wythenshawe built on or already leased for building) out of a total of 25,757 acres. This is to be raised under zoning to 2,294 acres, including 779 for light and domestic industries only, 400 of them at Wythenshawe. The new area has been calculated on the basis of population and industrial trends, allowing for improved employees' amenities and for future expansion on the site. The calculation is curious in one respect as it includes 314 acres for "mining and quarrying, building and decorating, the essential services, and the distributive trades" (p. 94). But it is clear from other evidence that shops are excluded, and purely commercial premises probably are also. As the margin on existing space for industry is a small one, the Plan should have given us an unambiguous picture of what is involved. It seems possible that industrial provision may be on the small side, when allowance is made for the duplications involved in re-siting,

¹ Excluding "commercial non-manufacturing businesses, lock-up shops, etc." which cover a further 770.7 acres.

and for the possibility that future trends may not necessarily be in the direction of industries economical of space. It is desirable to avoid too detailed a direction of firms to particular sites and impossibly precise calculations of their likely future expansion when they get there.

The hardest words of the Plan seem to have been reserved for the distributive trades. "An analysis of the present distribution of shops shows that there is a general and substantial over-provision, largely due to the haphazard conversion of single dwellings in the older area . . . Many existing shops . . . are not paying their way now, and certainly could not produce an adequate return on the cost of new buildings of modern design incorporating up-to-date trade facilities" (pp. 137-8). These assertions should not pass without comment. Manchester is certainly full of unsightly empty shops, having suffered from a persistent trade depression followed by a war. "Haphazard" must be compounded of "unbeautiful" and "resulting from a private decision." But mean shops are commonly no uglier than the mean streets in which they stand, and it may also be doubted whether private freedom has served the consumer worse than the fiat of Town Planning Departments "in consultation with the Shops' Sub-Committee of the Chamber of Trade and with other retailers' associations" (p. 138). Nor is it easy to see how a shop can "not pay its way" and remain open—the foolish minority who consume their capital in mistaken enterprises will do so in one way if not in another. Finally, some standard of up-to-dateness is invoked. There is of course a sense in which no shopkeeper can pay the cost of modern premises, unless he can afford to rebuild every year or two. In another sense, there are certain minimum standards (of cleanliness, for example) on which there is a broad consensus of modern opinion. But there is no third thing, no absolute economic standard of up-to-dateness to be imposed on the small shopkeeper, with the invitation to "see whether you can make *that* pay."

The detailed calculation of the number of shops required has in fact been based largely on assumptions as to reasonable turnover and profit. It is suggested that, with very minor

exceptions, no turnover should be less than £3,000 per annum (the figure is over £5,000 in sixty per cent. of the cases quoted) and no gross profit less than £900. On this basis, 286 shops are allowed for a district of 50,000 population, 1 shop for 175 persons, with a forty to fifty per cent. margin for "future additions which may be necessitated by a general rise in the standard of living" (p. 138). No figures of existing turnover and profit are available with which to compare the new standard. But from the table on p. 210 it appears that, in war-time, there was 1 occupied shop for every 52 persons in Manchester. This includes shops in the central area excluded from the new estimates. Allowing for these, it is clear that the Plan will involve a large reduction of the number of shops. There is nothing in nature to prevent the new shops being sub-divided in some cases, since each is provided with a fairly generous floor area.¹ But there is an obvious danger that such a plan might be used to license shopkeeping according to some arbitrary criterion of redundancy.² There may be redundancy in the retail trades. In the presence of fixed margins and resale price maintenance it is impossible to say how much.

The sociological approach of the Manchester Plan is based on the desire to arrest the disintegrative tendency of local society, by fertilising the social desert in the residential areas, and stimulating the attractions at the centre. The newly developed areas (and the old areas as they come to be

¹ In general, 350-450 square feet for the smaller, 900 square feet for the larger shops.

² In Miles Platting, which had 333 occupied shops at the time of the survey, a reduction to 43 is envisaged (the population is expected to drop by 61 per cent.). The reduction in Collyhurst is from 309 to 37, accompanying a two-thirds fall in population. In the latter case, the reader is told that the "site area can be increased to provide additional shops" (p. 259). The community centre and branch library between them will occupy as much space as that provided for shopping facilities.

Past policy has been restrictive. According to the *Manchester Evening News*, 11/2/46: "Wythenshawe tenants sent a deputation to the Manchester Town Hall to-day to ask . . . for better shopping facilities." Points raised were the "danger in giving shopkeepers a local monopoly" and the "unnecessary restriction . . . as to what shops can sell." The author of the Plan agrees (p. 145) that Wythenshawe's present shopping facilities are inadequate.

re-developed) are to be planned as far as possible in "neighbourhood units" of 10,000 people, grouped into "districts" of 50,000. Layout is expressly designed "to foster a sense of community" (p. 5) and each unit is to be built round a neighbourhood centre, containing the principal shops, "the health sub-centre, community centre, branch library, two public houses and a church" (p. 139). The housing accommodation is to be adapted to the needs not only of family units of differing size (on which the Plan has some excellent remarks) but also to those of "an average cross section of the population" (p. 134). The neighbourhood unit is to be "a modern urbanised version of the traditional village" (p. 135), with the community centre as the "dominating" building.

One wonders whether all this will work, in particular whether the publicly provided centre is the answer to the communal "problem"—if it is a problem. Community centres can do invaluable educational work, provided not too much is asked of them. But will they fill the larger role claimed for them? The traditional village was, it is true, often centred in the church and the big house, but it was not in that respect a particularly democratic institution. Its communal life had deeper roots in a traditional economy that has largely disappeared. The present tendency to congregate on a basis of class, clique, work or specialised interest, shows no sign of being reversed. Such genuine local communities as there are seem mostly to be very small ones centred partly in such despised institutions as street shops and corner public houses, "little better than converted dwelling-houses" (p. 139).¹ and small clubs of various kinds. If the social decision is that we should finance "community life," might we not treat the project more experimentally, giving where possible some initiative to wards and social groups within the city to help in creating their own special provision? It would have been interesting to have had a detailed survey of the Wythenshawe area, to see what spontaneous developments in group life had occurred, how they might be built on and the gaps that exist. We should not neglect any line of approach which might, for

¹ "A substantial decrease" in the number of public houses is proposed.

instance, involve a number of different units instead of a single centre, or an experiment like the Peckham Health Centre, which does not fit easily into the ordinary pattern of community and health sub-centre planned for us. It would be a pity if the practical difficulty in obtaining public money for unstandardised projects were to stand in the way of a real accommodation of communal facilities to public needs. Whatever provision is made, the crux is certainly to stimulate local initiatives, and not simply to assemble an impressive battery of clinics, reading rooms and canteens. Both new towns and replanned areas should be encouraged to develop their own representative institutions as quickly as possible.

The point is worth stressing because the modern town planner, in spite of his rejection of monumental planning, is in some respects still obsessed by the virtues of sizeable and dignified buildings. This appears at some points in Manchester's proposals for its city centre. The various courts of law are, for instance, to be assembled into a single structure, "the largest of its kind in the country, worthy of a prominent position in the centre of the city and adding greatly to its dignity and prestige" (p. 196). The values implied in this sentence seem false. The function of the law courts is not, after all, to add to local prestige (nor even to suit the convenience of busy lawyers) but to serve the public justly. Enlightened legal thinking has tended towards a more precise discrimination of procedure and treatment between different types of case, and towards a reduction of the psychological and other barriers that hinder ready access to justice. It seems a logical consequence of this that even a mental association of the petty cases dealt with in the local magistrates' courts with the more awe-inspiring Assizes should as far as possible be avoided, and the approachability rather than the dignity of the law emphasised in the buildings which house it.

A similar preoccupation is to be sensed in some of the proposals for the cultural and educational centres. The University of Manchester certainly needs the bigger and better buildings envisaged for it. But one has uneasy doubts about the emphasis on the "competitive handicap" (p. 99) as

against the United States of America, the "broad central campus" round which "are disposed the private residences of the Vice-Chancellor, Bursar and Registrar" (p. 102), the local counterpart to "Chelsea, Bloomsbury and New York's Greenwich Village" (for dons and intellectuals) which is to replace the present "scattering of small cottages" round the University quarter. It is important not to become distracted from what should be the central concern—with the living body of the University, its teachers and students, and the quality of their work. Will there also be money to buy those ten copies of each important book which a University teacher sometimes dreams of for his seminars, when all this building is finished?

No attempt is made to estimate the cost of the Plan—mainly on the ground that "with or without a plan, most of Manchester will again be gradually rebuilt in the course of the next half-century" (p. 1), and that the Plan is principally concerned with where the rebuilding is to take place when it happens. We are told (p. 200) that the "only real cost" will lie either in the premature demolition of usable buildings or in the prevention of re-development on adjoining land until such buildings have lived out their full life. The cost to those firms that "dislike the prospect of re-siting," and to the public (in so far as such firms revise their prices and production plans or are induced not to by financial assistance from the local authority or the National Transport Board) is assumed to be cancelled out by gains through reduced congestion and improved amenity. The author of the Plan is alive to the fact that these costs exist. But it should be emphasised that there is nothing automatic about the offsetting gain.

The author ends with a plea for the large local authority. The White Paper on Local Government is criticised for its view that a town over-spilling its people into a new one has "no automatic right to retain jurisdiction . . . by extending its boundaries." The White Paper is probably right in so far as it implies that areas should not be governed by the financial chase after disappearing rateable values. The Plan, however, is on strong ground in stressing the administrative difficulty

of removing the population if the areas concerned are not in close touch at every stage. The Reith Committee¹ has expressed a preference for the independent "public corporation" to develop new towns, and the New Towns' Bill since presented to Parliament disposes of the possibility (left open by the Reith Report) of local authorities sponsoring these bodies. This will be unsatisfactory to large county boroughs with their own well-equipped town planning departments, and to Manchester in particular with its experience gained at Wythenshawe. But creating a new town presents fresh problems. If it is to be more than a dormitory, its development must be governed by its economic absorptive capacity rather than by the "decanting" pressure from outside. Wythenshawe, after all, became largely a re-housing project and employs only a small percentage of its population locally.

¹ Cmd. 6759 of 1946.

R. N. SPANN.

Reviews

Economic Progress and Social Security. By A. G. B. FISHER.
(Macmillan, 362+xii pp., 18s.)

In the dark ages between the two world wars the economic system fluctuated so violently that the desire for security came to dominate men's minds. To maintain the *status quo* became a principal objective of policy, and many ancient restrictive devices were revived in order to check the forces making for change.

In an earlier book Professor Fisher pleaded that some change must be allowed if there is to be progress. In his new volume the clash between progress and security disappears ; both are possible, and he shows how they may proceed side by side.

The crux of the matter lies in his excellent discussion of the meaning and pre-requisites of social security. If security means that each man is to be guaranteed his job and income, it is incompatible with progress, and unattainable. But if it means only that each man must be guaranteed some job, and some minimum income, then there is no clash, and the true guarantee of security is a policy for continuous full employment. Given such a policy, attempts to gain security by frustrating structural adjustment are clearly anti-social ; not only will they frustrate progress, but they may make the attainment of security impossible by making it difficult to maintain full employment.

This thesis is set out in the first half of the book, with all the style that we have come to expect from the author. From the nature of security the analysis sweeps on to illuminate the dynamics of structural change and the barriers to progress, and in the light of this we are given a concrete programme designed to enable structural adjustments to proceed smoothly, and with the minimum of individual hardship. Seeing that the immobility of our resources, human and material, has so often proved to be our most important practical economic problem, one can only marvel that economists have hitherto devoted so little attention to the practical ways and means which Professor Fisher is advocating.

While wholeheartedly accepting the general thesis, readers will not accept all the details of the argument. For example, the war does not prove that full employment can be secured only by reducing the standard of living, if this is what Chapter IX is intended to imply. The book is indeed at its weakest in everything that it says on the cause and cure of cyclical fluctuations, e.g., its over-emphasis of the importance of resistances to change as a cause of crisis (Chapter VI and end of Chapter VIII), or its inconsistent approval (p. 67) and belittling (pp. 38, 187) of public works' policies. One would expect that since both social security and a favourable attitude towards structural change depend on maintaining a high level of economic activity, Professor Fisher's programme would include a full employment policy; but he seems not yet to have emerged from the view that an economic system which was perfectly flexible structurally would not be subject to general fluctuations in activity. This view may be sound on some very extreme definition of structural flexibility; but in any sort of world for which we can reasonably hope it is just an illusion. Professor Fisher quotes Professor Hutt in his support; in matters of employment policy Lord Keynes is surely the better guide?

One doubts, too, whether Professor Fisher's programme takes account of the magnitude of the structural changes which the economic system is called upon to assimilate. His view is instanced by the following: "If the demand for coalminers, for example, is falling off, the situation will largely be met if the sons of coalminers are encouraged to seek some employment other than that of their father's" (p. 62). One rubs one's eyes. Was it as easy as all this in the 1920's for the basic industries of this country? The war of 1914 left immense adjustments to be made, and so did the slump of 1929, and the war which has just ended. Professor Fisher's ironies and gentle proddings are well enough for a system in which changes are so gradual, but the world economy has not had a chance to settle down to gradual change for a very long time, if ever it had. For the same reason it is surprising to find no discussion of distressed areas or the problems of industrial location; or

of those problems of risk-bearing and capital compensation in severely maladjusted industries which Professor Allen has recently discussed in the *Economic Journal*. The fact is that our economic system, while it assimilates small changes easily, makes rather a mess of big ones, unless greatly assisted by Government planning in the right direction, *i.e.*, by planning to secure a high level of mobility and flexibility. So important is this kind of planning that Professor Fisher's amusing chapter debunking planning seems not merely irrelevant but inconsistent with the immense tasks imposed on Governments by his own objectives.

Professor Fisher weakens our case by minimising the importance of problems other than those of structural maladjustment, and by trying to create the impression that flexibility is easily achieved. This becomes most plain in the second half of the book, dealing with international problems. It is difficult to ascribe principally to failure to adjust to changes in international trade a slump which started in, and was most catastrophic in the United States, but this is the picture this book presents (pp. 236-241). And, the slump having arrived, it is not clear what structural adjustments Professor Fisher wanted the nations to make. The disappearance of several thousand million U.S. dollars from international trade left most countries with heavily adverse balances of payments ; it is clear that Professor Fisher thinks they were either foolish or wicked or both to try to bring their imports into equilibrium with their exports. Maybe they were, but he advances no alternative solution. Not all economic problems are problems of structural maladjustment, and any analysis which ignores the over-riding importance of changes in the general level of activity is bound to go astray. The whole of this part of the book gives the impression of hasty writing, and of trying to deal too summarily with complex problems. We all agree that barriers to trade are undesirable, and that countries must learn to adjust themselves to a changing world economy. But Professor Fisher has yet to do for this part of the subject what he has done so ably for domestic problems.

W. ARTHUR LEWIS.

Housing and the State, 1919-1944. By MARIAN BOWLEY.
(Allen and Unwin. Pp. viii—283. 15s.)

Miss Bowley's "Housing and the State, 1919-1944" is a book which should be read by all who are concerned with housing policy. In the first two-thirds of the book Miss Bowley analyses housing policy and activity in the three periods 1919-23, 1923-33/4 and 1934-39; in the remainder she is concerned with the questions which still remain to be settled and the problems of the future.

At a time when the permanent housing output of local authorities is less than that of private enterprise Miss Bowley's views on the respective merits and demerits of building by local authorities and private enterprise are useful. Local authorities in the inter-war years tended to build less in relation to requirements than private enterprise. Authorities, of course, varied in their activity but there were too many which took advantage of any weakness in central government policy. Some authorities built under the Chamberlain subsidy instead of under the Wheatley subsidy, which was more suitable for ordinary working class houses. It was argued that local authorities had inadequate powers and that the financial assistance given to them was insufficient. But in spite of all the excuses it is obvious that many local authorities were unwilling to perform the duties which Parliament had imposed upon them, particularly in relation to slum clearance.

At the centre, there was no settled policy as to the purpose of the Housing Acts or as to the rents to be charged. At one time it was argued that the intervention of the State should be confined to remedying the shortage of houses created by the lack of building during the war years. At a later date it was held that the State must only intervene to improve the standards of working-class houses. Hence the variations in the types and amount of Exchequer grants in the different periods. With regard to rents, some authorities based their rents on the approximate cost of building less subsidies; others on the basis of differential rent schemes. The tangle of the rent problem could only be unravelled by a clear conception of the

purpose of the Housing Acts, and in the absence of such a conception it is no wonder that there was a wide variety of rent scales as between local authorities.

Miss Bowley criticises the form of contract used for houses built under the 1919 Act. The model form of contract approved by the Ministry of Health included clauses safeguarding contractors against any risk of increase in the cost of materials and labour. It is argued that contractors would not have contracted on any other basis. This is probably true. The main point which is stressed is that the Ministry of Health failed to exercise sufficient control over the types of houses built and the layout of estates. Further, the form of grant payable by the Exchequer did not encourage local authorities to select the less expensive type of plans and layouts. But, as Miss Bowley shows, the Exchequer subsidies under the Acts subsequent to the 1919 Act were not as progressive as they could have been. The assistance given to the poorer authorities was frequently not in proportion to their needs when compared with the assistance given to the richer authorities. It may well be that in the future Exchequer subsidies in respect of housing will need to be weighted in a manner similar to that used in other grants.

From the Armistice to 1939 the total number of houses built in England and Wales was 3,997,700. Of these 2,886,000 were built by private enterprise, 2,455,600 without the aid of a subsidy. Of the houses built by local authorities the great majority had a rateable value of £13 or less. Private enterprise in the period 1919 to 1939 built 702,000 houses of £13 or less in rateable value, 1,584,000 of £14 to £26 and 591,000 from £27 to £78. The practice of building houses for letting by private individuals tended to decline in the inter-war years. It has been argued that one of the reasons for this was that the Rent and Mortgage Interest Restriction Acts discouraged private investment in new houses to let but this argument is not sound in that houses built after 1919 were not controlled. As Miss Bowley shows the main reason is that other ways of investing capital had become more attractive, particularly for the small

investor, and the uncertainty of the purpose behind the Housing Acts added to the risk of investing in houses to let. With the decline in the number of houses built to let the owner-occupier became more common. The building societies assisted house purchase. Building society advances increased from £40.6 million in 1924 to £136.9 million in 1937. The average value of new advances, under £1,000, on mortgage in 1937 was £463. In the Ministry of Labour Cost of Living Inquiry it was shown that 17.8 per cent. of the families of insured workers living in urban areas were buying or had bought their houses. From a sample of budgets of civil servants, local government officials and teachers it was found that 64.7 per cent. had bought or were buying their houses. It is obvious that the cost of buying a house was too high for the general run of working-class families, and it should not be forgotten that local authorities, because they could raise their capital on easier terms, could provide houses more cheaply than private enterprise.

Miss Bowley's comments on the general economic and social problems affecting housing policy are particularly opportune. The fashionable solution for the overcrowded large town is to recommend the establishment of a satellite some distance away but under the control of the old authority. As Miss Bowley says "new towns to be worth the name must be independent of old towns," and probably the establishment of any new towns would best be achieved through the agency of an independent authority. Until recently very little attention has been paid to the idea of grafting on to existing settlements, not quite large enough for really efficient administration, some of the population of the overcrowded large town. In the re-housing of people it is essential to see that they are re-housed in communities and not merely in "housing estates" devoid of any community spirit and life. But how to attract industry to these new centres is still a problem which remains to be solved. In the past one of the biggest obstacles to "exporting" population has been the fear by local authorities of losing rateable value, but this loss has tended to be exaggerated in that local authorities have more often than not failed to take into account consequential savings in expenditure.

Miss Bowley deliberately omits any detailed discussion of the questions connected with the control of the use of land and the acquisition of land for building. The procedure whereby local authorities can acquire land has recently been made very much easier, but it is rather a pity that Miss Bowley has omitted any discussion of the control of the use of land and in particular the proposals of the Uthwatt Committee. If Miss Bowley had examined the theoretical basis of "floating value" and "shifting value" she might have helped to remove some of the misconceptions found in housing and town planning circles.

In the final chapter—"The War and the Lessons of the Past"—Miss Bowley outlines some of the problems in housing which face us. The key to the subsidy and cost question lies in the control of demand for, relative to the supply of, building resources. As present experience shows this is by no means an easy task. Success or failure will depend not only upon the administrative skill of the controlling authority but also upon the willingness to accept control. Miss Bowley suggests that it may be necessary to raise the rents of some of the houses—presumably municipal houses—built before the war. While theoretically there is much to be said for this, it would be by no means easy to achieve in view of the political difficulties involved. As to policy it is obvious that it must be settled more on a long term basis than in the past. Whether local authorities are the best agencies to execute this policy is still a doubtful question, but it is certain that complete dependence upon private enterprise would not result in the provision of the requisite number of houses for the lowest income groups. Miss Bowley's book presents the major problems of housing and it provides a foundation on which future policy can be built.

HENRY HARTLEY

Prospects of the Industrial Areas of Great Britain. By M. P. FOGARTY. (Methuen : 1945. Pp. xxxv—492.)

This volume is a “study of the post-war economic prospects of the main industrial regions of Great Britain.” The bulk of the book is based on detailed regional reports prepared by the Nuffield Survey’s local investigators; to this three general chapters are added, on the pre-war position, war-time developments, and the conclusions. There is also an introduction by Professor Cole.

The intention was to discover, for each area surveyed, “whether . . . there seemed likely to be after the war . . . in the absence of any special measures of Government planning and control, either an excess or a deficiency in the total openings for employment and either a reasonable balance or a lopsidedness in the character of these openings in relation to the make-up of the local supplies of labour and to the liability of the local industries to fluctuations in their employment capacity.”

To discover this certain assumptions had to be made. The basic assumption was that conditions “would be broadly similar to the conditions which prevailed before the war, except where a change seemed likely to occur irrespective of official policy, or had already occurred and seemed likely to be permanent, or where a definite decision on policy had been taken by the Government.” Most of the book, however, was written before any of the Government’s proposals were published. The White Papers on Employment Policy and Control of Land Use, the Distribution of Industry Act, for instance, as well as the Abercrombie Plans for London, all came into being since this book was finished.

On the above assumption, the book proceeds to describe economic activity in various parts of the country. About 350 pages are given to descriptions of the conditions in each region, but most chapters are undigested accumulations of facts, with a complete lack of economic analysis. We learn, for instance, (p. 376) that “Quarrying for clay or stone is carried out in several parts of the county (Devon); it is most important towards Plymouth and in the district round Newton

Abbott." Or, "The traditional and dominant industry of High Wycombe is furniture making . . ." (p. 395). "Newhaven is dominated by its port . . ." (p. 400). In Derby, (p. 308) "the leading engineering concerns before the war were the L.M.S. locomotive works and the Rolls-Royce plant." This is an elementary geography lesson—not economics.

Occasionally, however, some of this information is more entertaining; the references to the offertory boxes at Buckfast Abbey, or to the mass production of Devon pixies. Impressive, too, is Mr. Fogarty's disclosure that "There is no reason to expect any serious depression at Malvern after the war."

With such material at hand, without knowledge of official plans, and working on such a specious assumption, it is not surprising that the three general chapters are confused and superficial.

In the conclusions, Mr. Fogarty writes of the need for comprehensive planning machinery. The emphasis is on machinery, with little attempt to find the principles for which this machinery would be needed. It should be noted that this really does mean *comprehensive* planning. "The most general impression left by the regional surveys is the need for careful planning of the economic development of prosperous as well as potentially depressed districts." "The need is not only for planning in all parts of the country; it is also for comprehensive planning designed to deal with the problem of each region or of the country generally." The logical conclusion, which is explicitly given in the introduction, is that "rational" plans must be drawn up for the "correct" location of industry, so that there can be an exact "fit" of industry and labour not only in each watertight region but in each town and district within each region.

The policy is, of course, "work to the workers"; this seems to be the only principle for location on which the "comprehensive plan" is to be based. Although Mr. Fogarty commits himself to "a certain amount of movement about the countryside is desirable at any time," migration is a last resort. Instead, Mr. Fogarty plays with "methods, such as

drastic licensing, or rationing of the supply of capital or capital goods, which may limit the freedom of the owners of industry to such an extent that a large share of the responsibility for the success of a new enterprise is transferred to the State or other controlling body." To what lengths we are driven when we set our faces against mobility of labour—an essential part of any location of industry policy. And is it not ironical that those who seem most anxious to increase the well-being of the industrial population are in fact often advocating measures which can only hinder the raising of our standard of living? The idea of self-contained regions, the lack of mobility, the "temporary maintenance of older industries," are some of the rigidities which comprehensive planning would introduce into the economic structure. Progress demands change, and planning of this kind is, in fact, an attempt to preserve the *status quo*.

The most disturbing feature is the lack of even the most elementary economic analysis. Although the book is mainly concerned with the problem of the distribution of industry, the concept of comparative costs of location does not appear once. It is also significant that although the index lists many references to planning, neither wages nor costs are mentioned.

Yet the book is not useless. It shows more clearly than any attack, the weaknesses and absurdities of the "comprehensive planners" position. Nothing could demonstrate more forcibly the impossibility of industrial forecasting of the kind required for comprehensive planning than the following quotation from Professor Cole (my italics). "It is then out of the question to prophesy absolutely what the economic position of any area would be in the absence of any deliberate intervention designed to influence its industrial structure. It is, however, possible to take account of *probable* tendencies, and to arrive at *reasonable* estimates of *probabilities* in a *good proportion* of the cases. In a *broad* sense, we can feel *fairly* certain that the trends of post-war consumption will not be *altogether* different from the inter-war trends, and on this basis we can reckon with *fair* safety that industries which showed a marked tendency to expand between the wars will in *most* cases resume their expansion when the war is over."

This quotation shows how impossible it is for "planning" to take into account the many unpredictable factors on which progress depends. Some of these factors are explicitly mentioned—the general level of demand, changes in demand, and technical changes. But many other questions are raised implicitly. What is an industry? What is its optimum size? How can this be divided into the optimum size for each area? Is the fact that there were 20,000 insured workpeople in area X in June, 1939, sufficient reason for assuming that there must be not less than 20,000 in 1979? Is it really possible or desirable to control investment so that it is distributed in the "right" way in each self-contained region? How does one decide what will be the balance of openings for employment in a town in twenty years' time, with regard to relative demands for skilled and less skilled, male and female, adult and juvenile? What principles can these estimates be based on? What criteria did Mr. Fogarty have in mind, for instance, when he writes (p. 82) "it appears that the long decline of British coal-mining is coming to an end, and that prospects are better than for many years before the war"?

Mr. Fogarty's answer to these and other questions is hardly convincing. "It is clear that before any satisfactory policy for dealing with local economic problems can be developed it must be the duty of some national authority to take on the one hand an estimate of the probable rate and direction of development in each industry and on the other an estimate of the probable condition and needs of each region, and to compare the two and extract from them, in the light of all the relevant considerations—the probable general level of economic activity, the machinery available for controlling the location of industry, and so on—a scheme for the guidance of those directly concerned with solving local problems. The scheme need not be rigid . . ." "But some sort of loose fitting scheme of mutually consistent directives (*sic*) is clearly necessary to avoid a conflict of claims, with resulting irritation and disappointment, or failure to make the best use of available resources." But why does Mr. Fogarty not reveal to us a little more of this scheme? It is not much help to be told that planning must take account

of all the relevant considerations "and so on"—the point is precisely how is this to be done? To quote Professor Jewkes, "This is another case where the planner puts on the mantle of the purist when criticising the free economy whilst taking up the bluff attitude that 'something less than the best' must serve when examining his own proposed scheme of things." The free enterprise system may not be perfect. But the main argument in its defence is that it is considerably less imperfect than any other system.

The conclusions of the critical reader, therefore, may well be contrary to Mr. Fogarty's intention. It becomes clear that we must concentrate on national income planning and not on *ad hoc* industrial interference, and that it is not only desirable but inevitable that we should use monetary policy to maintain national expenditure and a high level of employment.

One point, however, in Mr. Fogarty's favour. He practises as well as proclaims the virtues of comprehensiveness. Panaceas and platitudes, fallacies and clichés, bogeys and Devonshire pixies, Mr. Fogarty has found room for them all in this book.

JOHN B. WOOD.

A New Synthesis of Welfare Economics

Those who are familiar with the earlier writings of Professor Lerner will not be misled by the rather journalistic title of his book¹ into expecting anything but a work of the greatest intellectual distinction. It is, in fact, a systematic treatment, on a highly theoretical plane, of economics in its normative aspect—what Sidgwick called the Art of Political Economy, and Pigou the Economics of Welfare.

In recent years an increasing proportion of work done in analytical economics has been concerned with the normative rather than with the real or even hypothetically real. Despite the brilliant work of Chamberlin, Mrs. Robinson, and others on imperfect competition one has the impression that as the importance of competitive enterprise in the real world declines in favour of an expansion of centralised control whether exercised by private interests or public authorities economic theory has less and less of relevance to say about what is or will be, but on the other hand has an increasing sphere of usefulness in the discussion of what ought to be. Two streams of thought contribute to modern thinking on normative economics. The main liberal stream which flows from Sidgwick, through Pigou, points out the discrepancies between the ideal and the actual, and examines how these blemishes—implicitly treated as exceptional—may be removed. This procedure has its practical counterpart in the grafting of certain reforms, sometimes socialistic reforms, on a structure of predominantly private enterprise. There is also, however, a socialist stream of normative economic thought which starts off by painting an ideal socialist economy and proceeds to ask how it can be made to work, and particularly how, having regard to the necessity, in view of the finite scope of the human mind, of effecting a decentralisation of economic decisions, the technique of the market can be employed to bring about the maximum of economic efficiency with the minimum sacrifice of those

¹ "The Economics of Control," Macmillan, New York, 1944.

distributive advantages which—for many—constitute the main attraction of the pristine socialist ideal. It is to this latter stream of thought that Lerner belongs. But one must not exaggerate the distinction between the two wings of welfare economics. Both are grounded essentially in the philosophy of universal utilitarianism, with its radical separation of means and ends—a philosophy from which economic thought unless it changes its character in some fundamental and at present unimaginable way is probably inseparable. Furthermore the two streams of thought have as time goes on tended to converge more and more. Whether this is due to some psychological law whereby liberals in their old age become socialists and socialists liberals (the latter perhaps being Lerner's case) or whether it is due to the fact that both sides having thought out the problem more fully tend to unite on a solution which represents pure truth is something this reviewer will not attempt to determine.

It is an indication of the quality of "The Economics of Control" that a comparison with Pigou's Economics of Welfare does not seem out of place. Lerner, however, circumscribes the field of his enquiries more narrowly, though within it he digs deeper. He confines himself strictly to such questions as can be dealt with by the two main techniques of analysis characteristic of modern economic thought : the theory of value in the sense of multiple equilibrium analysis and the (Keynesian) doctrine of employment. A firm eschewal of all "borderline" questions leads him to a somewhat drastic abridgement of the scope of welfare economics. A list of the topics omitted by Lerner would be long and not unimpressive e.g.

- (a) There is scarcely any discussion of the extent to which economic subjects—consumers and workers—can be expected to make a wise choice between the alternatives open to them, or of the relative merits of individual liberty and central guidance in this sphere.
- (b) Only a few sentences are given to the crucial question of the relative spheres of centralised control (planning) and dispersed initiative in the organisation of production.

- (c) The "supply" of human beings is taken as a datum. No attention is given to the question of optimal population, or of the bearing of income distribution on this.
- (d) It is tacitly assumed that all utilities are appropriable and exchangeable. A somewhat startling silence is maintained on the subject of true external economies and diseconomies of production and consumption which play a large part in the welfare economics of Sidgwick and Pigou. (Meade has amplified this point in his review of the book in the *Economic Journal*¹).
- (e) No mention is made of the costs involved in the process of exchange and of the market imperfections caused by ignorance.

The "silences of Professor Lerner" it will be observed have a strong cumulative tendency to favour a liberal solution of economic problems by concealing the imperfections (*i*) of individual choice and (*ii*) of the market mechanism whereby a multitude of individual choices are expressed and harmonised. The fact that he is equally silent regarding the practical and organisational difficulties of the type of socialism which he himself favours does not restore the balance, because Lernerian socialism, an extremely decentralised system wherein the actions of autonomous managers are dovetailed through the market mechanism, is from a broader point of view really a form of liberalism.

Lerner starts by assuming a closed and timeless economy, where there is no production and the various consumable goods are available in fixed supply. He then proceeds to distinguish the problem of the allocation of goods (*i.e.* of bringing it about that the marginal substitutability, or relative marginal utilities of each pair of goods is the same for each consumer), from the problem of the division of income (*i.e.* of so distributing goods in general between consumers that the *absolute* marginal utilities for each type of good are the same for all consumers). His practical solution for the first problem is to give consumers

¹ Mr. Lerner on the "Economics of Control," *E. J.* April, 1945. pp.52-57.

money incomes and to allow them to compete for the purchase of the available goods at uniform prices determined by supply and demand. The second problem is solved by an appropriate distribution of the money incomes. The justification of this method of carving up the problem is not to be sought in any philosophical squeamishness on Lerner's part about comparing interpersonal utilities, but rather in the fact that it smooths the way to the attainment of what he regards (and I agree with him) as the correct solution. But it is well to bear in mind that the distinction in question, like similar distinctions of earlier date between the "maximisation" and "distribution" of the national dividend or between "production" and "distribution of wealth depends for its validity on the existence or at least desirability of a market economy; and that those who are sceptical about the ability of the individual consumer to choose for himself and who reject the market as a means of arriving at the optimum will be more disposed to think in terms of the inter-personal distribution of particular goods, than in terms of the distribution of income.

Having thus arrived at conclusions regarding the optimum distribution among consumers of any given supply of goods Lerner goes on to consider a series of model economic systems in which the supply of goods can be varied by production. He starts with "simple production," where there is only one transferable factor and no indivisibilities, and proceeds, by stages, to an economy where, in any productive unit, a number of factors may be combined, in varying proportions. So long as the assumptions that there are no significant indivisibilities is retained, Lerner shows that the marginal rule of optimisation (which he calls simply and majestically "the Rule") applies. The "Rule" requires that both products and factors should be priced on free markets in which demand and supply are equalised, that the distribution of income should be satisfactory or inevitable, that consumers should adjust their purchases so as to equate their marginal substitutabilities for the various products to their relative prices, and that the managers of production units should increase the input of any factor in order to increase the output of any product up to the point at

which the value of the marginal product only just covers the price of the factor. All that part of the book which deals with the formulation of "the Rule," and the working out of its implications under varying assumptions regarding the production function (*i.e.* Chapters 5 to 7, and 8 to 11) is remarkable for the elegance and force with which the argument is deployed.

Lerner has indeed given such a thorough exposition of the marginal rule that little new remains to be said about it in its theoretical aspects, though, of course, many interesting problems of practical application remain to be explored. His treatment of the problem of optimisation in circumstances where significant indivisibilities exist, is, however, rather less sure footed and satisfactory. Significant indivisibilities are present wherever, in order to arrive at the optimal position, variations in input, output, or consumption may have to be considered which are so large in relation to the market as to entail significant changes in the prices of factors or products. The necessity for so large a variation will normally arise out of some physical indivisibility in factor or product. In these conditions when estimating the desirability of *e.g.*, an increment in an indivisible factor, the value of any corresponding increment in a (divisible) product will be given by the area under the relevant section of the demand curve for that product, while the cost of any corresponding increment in a cooperant (divisible) factor will be given by the area under the relevant section of the supply curve for that factor. Lerner expresses the first part of this rule—that relating to the product—correctly (pp. 196,7) but never achieves a clear exposition of the second part of the rule. He prefers to present the cost of the factor increment in terms of the alternative products foregone valued by the areas under the relevant sections of the demand curves for their products. This formulation, though not incorrect is surely much clumsier than the other, and less useful as a guide to the management of the production unit or industry. It does however serve to distinguish that part of the tendency of factor supply curves to slope upwards which is attributable to increasing scarcity of the alternative products, from that part which is attributable to the necessity

of drawing on factor units which have a relatively high physical productivity in their alternative use. The importance of this distinction lies in the fact that, whereas the surpluses accruing to factor owners from the latter cause might (in principle) be transferred to the firm making the indivisible factor input, by the exercise of perfect discriminatory monopsony, the surplus accruing from the former cause would not be so transferred. Thus a bulky investment may be worthwhile even if it could not, by the most complete exercise of discriminatory power, be made to pay.

Lerner's exposition of indivisibilities suffers from other defects which have been pointed out by Meade in his *Economic Journal* review.¹

Like most, if not all, of his predecessors in the field of welfare economics Lerner, though he acknowledges, and, indeed, emphasises the importance of indivisibilities, nevertheless formulates his basic rule of optimisation in terms of marginal adjustments. His marginal rule is "the Rule" and the formula for indivisible adjustments is an interpretive gloss to meet a special case. The necessity for such a gloss clearly causes Lerner some discomfort which manifests itself in the invention of a somewhat metaphysical concept "virtual marginal productivity." An indivisible factor, just because of its indivisibility, is incapable of a marginal variation, and hence of a marginal product. Its *virtual* marginal product, however, "is what the [marginal product] would be if the indivisible factor were in fact divisible, and it is obtained by considering what the actual [marginal product] would be, per unit of the indivisible factor, if the same change in proportions took place on a scale large enough to make the indivisibility insignificant" (p. 186). To this reviewer it seems that a better way of integrating indivisibilities into the body of normative economic theory might be to think of the optimisation rule for indivisible input-output variations as basic—as "the Rule"—and of the marginal rule as the limiting case attained whenever the variation is too small to affect the prices of factors or outputs.

¹Op. cit. *E. J.* April, 1945, pp. 58-9.

Given the criteria of optimal production how are they to be put into effect? Lerner answers with an "either : or." Either through bringing about a state of perfect competition, if that is possible, or else through direct application of the rules of optimisation by the managers of socialised production units. Both of these solutions assume a more or less decentralised administration of economic resources and rely on the mechanism of the market to co-ordinate the independent actions of a large number of "economic subjects," such as workers, consumers and managers of production units. It is this feature of Lerner's system—deriving, in all probability from Professor Mises critique of collectivist planning—which gives it its essentially liberal stamp.

His advocacy of the use of the market as an instrument of economic policy is salutary in these times, when the cult of direct centralised management is often carried to hubristic extremes. But his reliance on the co-ordinating virtue of the market is excessive, and even, at times naive. This is largely because his analysis is predominantly static and indeed timeless in character. He ignores or plays down the fact that production takes time and that workers, managers and capitalists therefore have to determine their actions not in the light of current prices and demand and supply curves only, but of their anticipations of future prices and demand and supply curves.

If economic processes were instantaneous and assuming the optimisation rules to be adhered to by all concerned the market mechanism would present each participant with an identical set of prices which accurately reflect the social costs and advantages of alternative courses of action, except in so far as the various participants were deceived regarding the matters which most nearly concerned them, *i.e.* except in so far as the consumer's tastes were faulty or the managers were technically inefficient. Under such considerations the optimal unit of control would be small and the co-ordination provided by the market perfect at any rate for marginal adjustments. But the market cannot ensure that *anticipations* of factor prices are consistent with each other, still less that they are accurate.

Errors engendered in this way will vitiate even present demands and supplies and hence present prices. I do not mean to deny that, whatever type of decision is in question, centralised control will always entail some loss through failure to take adequate account of personal, local, and other special circumstances. Nevertheless, for the reason described above, decisions relating to the more distant future—‘investment’ decisions—may often, on balance be more correctly taken when co-ordinated with similar decisions affecting closely competitive or closely co-operative processes by some central authority operating on the basis of a quantitative assessment of trends in demand and supply than when arrived at independently by individual workers, managers, or consumers operating on the basis of price anticipations. This, of course, means at most a partial supersession not the abandonment of the market system. Markets remain indispensable (a) to help co-ordinate the activities of the various planning authorities each of which can cover only a relatively small sector of the economy, e.g., an ‘industry’ (b) to ensure an optimal utilisation of resources in current production as distinct from investment, and (c) to test *ex post* the adequacy of past investment decisions as a starting point for current planning.¹

As between his two alternative techniques for attaining the optimum, perfect competition and the direct application of “the Rule” by managers of socialist firms, Lerner shows a reasoned preference for the former, partly because private

¹The argument here presented in favour of a measure of centralisation depends upon the dynamic character of the economic system. In a stationary state, where future prices are identical with present prices, price anticipations need be subject to no uncertainty and the market would provide a fully adequate guide even for investment decisions. But if some of the characteristic disadvantages of the market as a co-ordinating mechanism derive their importance from the dynamic character of the economy so do many of its characteristic advantages. In a system where tastes, techniques, population, etc., are all constant, the cumbrous bureaucratic machine of a completely centralised state might be able gradually to approximate to a distribution of resources, almost as near the optimum, even in respect of current production, as the market mechanism would have attained to. In other words, in a static economy the mode of organisation would be comparatively unimportant though the market system would then appear to have a slight advantage for all types of decisions.

competition unlike market socialism offers an incentive to managerial efficiency of optimal intensity.

He is not entirely clear, however, in his exposition of the circumstances in which perfect competition is feasible. Wherever the size of the market is small in relation to the indivisibilities there is at least a strong possibility that a firm aiming at optimal output would be obliged to produce under conditions of diminishing average real cost and therefore at a loss. In such cases therefore public ownership may be indispensable. But for a considerable part of his book Lerner also maintains that competition will be unstable even when the indivisibilities are insignificant and conditions of constant cost prevail. Only at the end of Chapter 17 does he recognise that, owing to the limitations of entrepreneurial capacity, constant cost to the industry is compatible with increasing cost to the firms, and that this circumstance may permit the existence of stable competitive conditions in certain branches of industry.

Where competition is possible but unstable, Lerner proposes to maintain it by certain devices, particularly (*a*) competition inside a given industry between private and public enterprise and (*b*) government counterspeculation. The former is a relatively familiar idea and one more open to objection on political than on economic grounds. The latter idea is more original but its limitations have been exposed by Meade.

Lerner makes no more than passing reference to other methods of restoring and maintaining perfect competition, e.g. legal prohibitions of restrictive practices, 'trust-busting,' restriction on the size of individual firms, price control, government marketing monopsonies, etc. Failure to consider these techniques in relation to private enterprise was probably responsible for failure to consider the possibility of employing them for the purpose of maintaining competitive conditions as between socialised production units. Lerner always assumes that the management of a socialised firm must be instructed to apply the rules of optimisation directly, though he recognises that it is difficult to give managers an adequate incentive to do so. But if conditions of perfect competition could be

maintained in a socialised industry this difficulty would be overcome, since then the managers could simply be instructed to maximise profits and given a monetary incentive to do so by having their salaries made variable with profits. Nor could it always be argued that if this is possible there is no need to socialise the industry at all. For it might well be easier to control amalgamation and combination between units in a socialised than in a privately-owned industry.

Lerner is less impressive in his treatment of distributional than of productional problems. He makes a good defence of equality of income as the best rough criterion of the probable optimal interpersonal distribution of income (Chapter 3) and demonstrates the superiority from the standpoint of incentives of effecting any desired redistribution through direct transfers rather than by acting on the demand, supply, and price of particular commodities (Chapter 4). But he never squarely tackles the crucial problem of welfare economics—how far and by what means it is possible to reconcile the ideal distribution of income with the provision of incentives favouring the ideal utilisation of resources.

Lerner's chosen instrument for the redistribution of income is the income tax. He appears to me to make rather too light of the adverse effect of this tax on saving and on the readiness to work, and when the tax is progressive, on risk-bearing. In particular he employs an argument which I consider fallacious. He argues that to levy an income tax may actually increase the amount of work done by the taxpayers in spite of the fact that the fruits of toil are taxed while leisure is tax-free, because the tax, by reducing the taxpayers incomes, will increase the marginal utility of income to them. This, however, is only one half of the picture. The beneficiaries of the income redistribution which the tax makes possible will be induced by the enhancement of *their* incomes to work less than before. But even if the redistribution of incomes achieved through the income tax could be shown to have the effect of increasing the net amount of work done that would not compensate in the least for the work-deterrant effect of the tax on marginal income. For the optimal amount of work, like the optimal

consumption of any particular commodity itself, alters as the distribution of income alters. If the income tax reduces the amount of work done below the optimum this is a reason for not carrying the redistribution of income by means of the income tax as far as otherwise would be desirable. The fact that such redistribution may increase the optimal—and even the actual—amount of work done is irrelevant.

Lerner's treatment of the time factor is not entirely satisfactory. As has already been pointed out he ignores the bearing of the uncertainty of anticipations on the case for centralised planning as against the market. Again in Chapter 20 where he is concerned to prove the necessity for including a rate of interest as an element of cost in an economic system where production takes time he confounds the optimal and the real. Thus what he succeeds in proving is that (so long as a physical yield is obtainable from postponing output or anticipating input) a zero rate of interest can only be optimal if all prices in general are tending to fall over time. But he speaks as if an attempt to apply a zero rate of interest would in fact lead to falling price over time and as if by taking interest rates into account this fall in prices would be stopped—which is, of course, the reverse of true (cf. pp. 246, 50-1).

But the most serious weakness in his treatment of the time factor arises in connection with the problem of the optimal provision for the future, *i.e.* the rate of saving or investment. In general, Lerner evades the necessity for devising criteria of optimisation in this field by saying that the determination of the rate of saving is necessarily a *political* decision and that there is no way, in a collectivist economy, of permitting consumers, as consumers, to make this decision *via* the price mechanism. On the other hand on p. 265 he sketches out a system whereby the government would regulate investment by charging the managers of state enterprises the same rate of interest as is charged to consumers who borrow from (or paid to consumers who lend to) the state bank. Only instead of the rate of interest being such as to evoke a volume of investment equal to private savings at full employment—as one would expect if it is desired that the amount of national investment

and saving should reflect the savings decisions of individuals—Lerner's suggestion is that it should be such as to equalise private saving and dissaving, *i.e.* induce zero net private saving. This would mean that all net investment would have to be financed out of public savings, *i.e.* budgetary surpluses. And since the effect of a budgetary surplus is to make the national income appear to the recipients to be smaller than it really is, such a system distorts rather than reflects the decisions of individuals.

Whether the decisions of individuals provide a proper guide to State action in this field is, of course, another question entirely. It is arguable that fallible and short-sighted human beings normally tend to save too little and consume too much, and in particular, that they pay too little attention to the welfare of their descendants. Lerner does not go into this question, which admittedly does not lend itself to theoretical treatment. More surprisingly for a welfare economist he omits to discuss the elegant formulation of the criterion for optimal saving worked out by Ramsay.

Four chapters of the book (21 to 24) are devoted to the problem of the maintenance of employment. Chapters 22 and 23 contain a good exposition, on Keynesian lines, of the mechanisms determining the level of employment in a capitalist economy. Chapters 21 and 24 set forth the strategy of a full employment policy.

This policy is conceived in terms of the maintenance of an adequate volume of aggregate demand and a proper balance as between public and private spending and as between consumption and investment. Problems of localised and structural unemployment are presumed to be solved by the flexibility of relative prices resulting from the general application of "the Rule" to production whether directly in the administration of socialised enterprises or by the enforcement of competition.

Lerner's treatment of the problem of maintaining aggregate demand is enlivened by the use of a striking expression "functional finance" to describe the principles of fiscal policy now fairly widely accepted among economists, viz., that the

primary object in taxing is not to "raise money" but to restrict private consumption expenditure and the primary object in government borrowing on long term is not to alter the composition of the government debt but to alter the composition of the assets in the hands of the public with a view to restricting both private investment and consumption. His exposition suffers from a degree of over-simplification, particularly in the following respects :

- (a) When considering the optimal budget deficit (or surplus) he overlooks the importance of the disincentive effects of taxation. Thus, on the one hand, he denies that the transfer of interest on domestically held public debt constitutes a burden on the nation, forgetting that the increased taxation which on his own principles will be required to offset the inflationary effect of the transfer of interest, will have a deterrent effect on effort, enterprise, and abstinence. On the other hand he takes no account of the improvement in incentive likely to result from the reduction in current taxation which an increase in the budget deficit will permit. This reduction is twofold :
- (i) That by virtue of which the increase in the deficit arises and
 - (ii) that which forms part of the combined reduction in taxation-cum-government expenditure which will be required in order to offset the inflationary effect of (i).

It will be seen that consideration of the discentive effects of taxation need not tell in favour of "orthodox" finance. If the discentive effects of marginal taxation are likely to be lower in the future than they are now, or if the propensity to consume is high so that a given increase in deficit necessitates a relatively large reduction in government expenditure and taxation, provided that a substantial transference from public to private spending can take place without much loss in utility then the considerations in question may lead to a *larger* deficit being desirable than would otherwise be the case.

- (b) He appears to place an exaggerated confidence in the efficacy of interest rate variation in determining the volume of investment both of private firms and of socialised enterprises. (It is, however, refreshing to meet an Old Believer in a world where half-baked heresy is rife.)
- (c) He treats taxation and subsidies solely from the standpoint of their effects on the volume and distribution of private incomes available for expenditure on consumption ignoring their repercussions on the *incentive* to invest and to consume.

The three concluding chapters in the book are concerned with problems of foreign trade, or, more precisely, foreign economic relations. Lerner's treatment of these problems is marked by the same mixture of brilliance and over-simplification which is characteristic of the book as a whole.

In an impressive passage towards the end of Chapter 26 he points out that criteria of economic behaviour the application of which within countries leads to the maximisation of economic welfare at the same time contribute the only practicable objective norms to govern the economic relationships *between* countries. In his own words: "It is not too much to say that any permanent peace among nations which must avoid the exploitation of any nation by other nations will have to be based on a general agreement to abide by a Rule of the same nature as that on which our whole analysis is built" (p. 354). These norms of behaviour in international economic relations suffer from the disadvantage of having no suitable names to designate them in their application to a controlled economy. They normally go by the names which are appropriate to a liberal economy—viz., free trade, non-discrimination, freedom of capital movements, freedom of migration—which leads some superficial spirits to imagine that they have no validity in a world of economic planning. There could be no greater mistake. Certain types of state intervention are incompatible with these norms; others make infringements more difficult to detect, and the norms themselves more difficult to enforce. But the validity of these

norms as criteria of optimal behaviour is in the nature of things, whatever the mode of economic organisation. Some of these norms may not be politically practicable in the sense that they put too great a strain on the international solidarity of sovereign states, and the rationality of peoples. But norms of behaviour other than these can only be of an arbitrary character, and can provide no durable basis for international agreement.

The most formidable intellectual argument against the adoption of the principles of international, commercial and financial policy indicated above, bears on the difficulty of reconciling them with the maintenance of world wide full employment. In the absence of a central world government with financial powers the maintenance of world demand, production, and employment must largely depend on the efforts of national governments to maintain the demand for goods and services at home. To some extent the general enforcement of the commercial and financial policy principles discussed above is favourable to this since it renders impossible certain methods whereby a country can improve its own employment at the expense of other countries and forces it back on the method of stimulating demand. But on the other hand by reducing a country's power to protect its balance of payments and its basic monetary reserves, both of which are threatened by expansionist policies, it may prevent them from carrying these policies as far as would be necessary to attain full employment.

Lerner's answer to this problem has the merits and demerits of extreme simplicity. It is that all countries should expand domestic demand to the point at which full employment is attained and that any consequential balance of payments difficulties should be solved by the adjustment of exchange rates. Such adjustment might be carried out by some international authority, or else by national monetary authorities each attempting to control its own exchange rate. The latter system is what Lerner appears to have in mind but it incurs the immediate practical objection that if countries are allowed to adjust their own rates there is no guarantee that they will only do so when compelled by balance of payments difficulties resulting from their resolute maintenance of internal demand

and employment. If all that was needed was to allow exchange rates to "find their own level" the solution of the problem would be—at a certain level of abstraction—relatively simple, for then each country could be required to pursue a passive policy, e.g. not to alter its stock of gold and foreign exchange by more than a small amount. But Lerner himself contemplates that governments through exchange stabilisation funds would actively intervene on the exchange markets with the object of evening out minor fluctuations in demand and supply, counterspeculating against exchange manipulations, and even, in certain circumstances offsetting the general trend of the market. But if the monetary authorities are free to intervene so actively they can hardly be relied upon to confine themselves to defending the balance of payments and to abstain from trying to secure a favourable balance of payments and trade, thus exporting some of their unemployment to other countries.

But even if countries were all to play the game according to the rules, or if the control over exchange rates were vested in an international authority it still would not follow that exchange rate adjustments are necessarily the best way of meeting balance of payments disequilibria due to temporary discrepancies in the degree of prosperity and employment in the different countries. The desirability of adjusting exchange rates to remedy chronic balance of payments disequilibria is not here in question. But cyclical disequilibria are another matter. Even apart from the possibility—which Lerner takes more seriously than I would—that exchange rate variations may have the perverse effect of aggravating instead of correcting such disequilibria it may well happen that in the short run their corrective effect may be very weak so that relatively slight changes in the trade balance would require for their correction substantial exchange fluctuations. These fluctuations would as experience has shown evoke very large and erratic international capital movements motivated by a desire to make a profit, or avoid a loss on, the foreign exchanges. Such movements, which far exceed the "manipulations" of which Lerner speaks, would be very difficult for the exchange stabilisation fund completely to offset either in their effect on

the domestic money and capital markets or on the foreign exchange rates whose fluctuations they would intensify. The exchange instability resulting from these causes would have a disturbing effect on international trade and would on balance check enterprise and investment in industries dependent on foreign trade. They might also enhance the insecurity of, and hence discourage, foreign lending of a desirable type—though of course, default on past loans as an alternative method of correcting balance of payments deficiencies is still more deterrent to potential future lenders.

In these circumstances it is at least a matter for consideration whether, at the risk of breaking—or bending—the Rule, it might not sometimes be better to deal with the balance of payments difficulties of countries valiantly maintaining full employment in the face of cyclical depression abroad by measures internationally controlled or supervised, which, at least temporarily, interfere with the movement of goods or capital. In particular there are reasons for thinking that control, both positive and negative, over the flow of capital, on long and short term, has an important part to play in any effective policy for world employment and stability. In the first place *laissez-faire* in the matter of capital movements is unlikely of itself to lead to the optimal distribution of capital funds and the equalisation of marginal efficiencies of investment throughout the world. As a result of psychological factors, of what may be called the “propensity to default,” and of the fact that the possibility of hoarding money sets an arbitrary floor to the rate of interest, the international flow of capital during periods of world depression usually falls below optimal levels even by Lernerian criteria. Intervention on the part of national authorities or inter-governmental institutions to restore the flow of capital at such times would tap new investment opportunities and raise the level of world demand and employment. But over and above this it might be worth while to promote, through the intermediary of such bodies as the International Monetary Fund, an artificial flow of short term capital from countries which are the generating centres of depression to countries which are striving to maintain

home demand and employment in the face of depression abroad so that the latter may be able to finance the adverse shift in their trade balance which this policy will entail. For it would (probably) be conducive to world employment and stability as a whole that countries the demand for whose exports has suffered from the onset of depression abroad should be encouraged to maintain employment, if they can, by expanding home demand rather than by measures, such as import control or exchange depreciation, which protect their balance of trade and reject the onus of fighting the slump exclusively on those countries whence it originates.

From what has been said, here and in other journals, about the "Economics of Control" it will be seen that the book is discussable and stimulating to a degree. It has the major merit of provoking thought—and the minor demerit of provoking review articles which, however nasty and brutish, cannot be said to be short.

J. M. FLEMING.

*The German War Economy.⁽¹⁾

The waging of "total war"—the utmost concentration of resources and effort on the single objective of military victory—was always regarded as a peculiarly German doctrine, ever since the days of Clausewitz. The proclaimed political philosophy of the Nazis was the total subordination of individual interest to the interests of the State; and State interest was conceived in terms of aggrandisement of power to be achieved by war. The "totalitarian" system of Nazi Germany was thus generally regarded—by its supporters, as well as its opponents—as one whose main purpose and *raison d'être* was the translation of Clausewitz's ideas into practice. Little wonder that the world outside Germany—the military and economic expert, as well as the man in the street—assumed, almost as a matter of course, that in the prosecution of the war the German economic system "was strained to its utmost"—that in pursuing their main objective, the Germans went as far as it was humanly possible to go. Utter ruthlessness, combined with superb organising ability—the two main characteristics with which the world credited the Germans—could lead to no other conclusion.

The collapse of Nazi Germany and its occupation by the Allies, (and also the lavish scale on which Allied authorities provided for their intelligence agencies) has made possible a post-mortem analysis of the Nazi system and war effort which,—regarded purely as a historical research project—is unprecedented in scope and magnitude. There can surely not

¹ Most of the information presented in this paper was acquired by the author in the course of his work for the U.S. Strategic Bombing Survey in Germany in the summer of 1945. The results of this investigation, in which a number of economists and statisticians co-operated, have now been published in the United States under the title "The Effects of Strategic Bombing on the German War Economy."

* This paper was read before the Manchester Statistical Society on 22nd May, 1946.

have been any previous occasion in history where the defeat of the enemy in the field had been followed by such a detailed analysis of the causes of his defeat on the part of the victors—a dissection of its military strategy and tactics, of its political and social institutions, its administrative and technical practices, the technical, administrative and economic aspects of its industrial organisation. This monster "research project" is still under way and it will take years before its results are properly digested and summarised. Some preliminary results have, however, already been published and it is possible to give an account of the main features of the German war economy, as revealed by post-hostilities investigations.

The most important conclusion which emerges from these enquiries is that the picture of the German war effort which dominated Allied imagination was very largely a false one. Germany did not fight a "total war"; despite all the propaganda talk, she made no serious attempt to exploit her own war potential fully, except perhaps for a brief period in August and September, 1944, when it was too late to be of any consequence. Whatever the ruthlessness she may have shown towards vanquished enemies, there is no evidence of ruthless sacrifices having been imposed upon her own people for the sake of victory; in terms of the thoroughness of the war effort, Germany lagged well behind not only Britain or Russia in the present war, but also behind her own showing in the first World war. Whatever else may be said about the German war economy it certainly was not "totalitarian."

Nor was the German war organisation particularly efficient as measured by modern standards. Although everything was "controlled" (on paper) right from the beginning of the war, the actual administration of controls was often clumsy and amateurish in the extreme. It suffered greatly from a multiplication of controlling agencies, with no proper division of spheres of influence between them; from the Nazi predilection for taking away all real power from the regular Civil Service hierarchy in favour of hurriedly erected *ad hoc* Commissariats, superimposed on the pre-existing administrative structure

without any proper forethought or planning; from constant quarrels and boundary disputes between State and Party functionaries; and finally, from the Führer-principle which meant that no one below the Führer had over-all co-ordinating powers or was safe from being unexpectedly overruled or deprived of genuine responsibility. Although certain segments of the economy—notably the industries under the control of the Speer Ministry and agriculture under the extremely able State Secretary Backe—showed highly impressive results, the problem of securing proper co-ordination of controls, (a pre-requisite for a total war effort) remained unresolved to the end.

Whether a really efficient and totalitarian German war effort would have fundamentally altered the course of history is not a question that can be fruitfully debated. As it happened, the reluctance or inability of Germany to engage her resources to the utmost brought her undoubted (and largely unexpected) compensations, and not only disadvantages. It was largely due to the limitations in her war effort, that the German economy proved so elastic and resilient and showed such high adaptability to unforeseen changes in requirements caused by changes in strategy and in military fortunes. The high degree of administrative and industrial inefficiency with which the German economy was initially conducted constituted a vast reserve on which to draw (a reserve that was never properly exhausted) which time and again enabled the German leaders to parry the enormous unforeseen blows to which they were subjected. It acted as a kind of shock absorber both as regards the Allied air attack and the military defeats in Russia.

I propose to devote the main part of this paper to an examination of this thesis—that Germany did *not* fight a total war—by comparing her record with that of Britain and other Allied countries. In the concluding part, I shall attempt to sketch a historical explanation of the course of events.

THE MEANING OF "WAR POTENTIAL."

The question which we have to examine is not simply whether Germany's war production was large or small but how it was related to her "war potential"—meaning by the

latter, the maximum war production which the country's available resources permit, once these resources have been fully adapted to the purpose of carrying on the war. On this view, the war potential of any country must be determined by at least one of the following four factors: the capital equipment of its industry, its available man-power, its supply of raw materials, and finally, the ability and skill of its industrial organisers, engineers and technicians. Some of these, however, are limited only from a short-term view point. Assuming that there is time enough to build up the capital equipment of its industries, in all stages, to the requirements of war, the ultimate limits to a country's war potential are set simply by the quantity and skill of its man-power, and by the richness of ores and minerals of the areas under its control or with which it is capable of trading. These two are the ultimate bottlenecks which must become operative if and when all other temporary bottlenecks have been overcome.

The experience of Britain and the United States fully bears out these generalisations. In both countries, the war effort in the early stages was limited by an extreme shortage of the requisite kind of capital equipment—particularly machine tools. In both countries there was a second stage, (albeit a brief one) when expansion was held up for lack of the requisite kinds of raw materials such as steel, aluminium or rubber. And in both countries there was a third stage, when the level of war production was set neither by machine shortage nor by raw material shortage but simply by man-power. This third limit, let us be clear, though it is an ultimate bottleneck, is not a rigid one. It is relative to the extent of the sacrifices and privations which the community is willing to impose upon itself. Given the total population, the man-power devoted to war purposes can be expanded by making people work longer and harder, by calling upon women, the young and the old, and by reducing the supply of goods for civilian needs. On this test, Russia had a more total war effort than Britain, and Britain than America. But it is just this element—the extent to which the total potential labour power is

concentrated on the war—which, (in the absence of other, more rigid limitations) measures the seriousness of the war effort.

Which of these three main bottlenecks limited the German war effort? I shall examine the position with respect to each, only to conclude that this search after bottlenecks, in the case of Nazi Germany, is rather a futile endeavour—the German war effort was not really limited by bottlenecks, simply because German war production—except perhaps for a brief period in the summer of 1944—never reached the heights where more formidable bottlenecks would have been encountered.

EQUIPMENT.

Let us begin with the question of capital equipment—generally regarded as the earliest stumbling block in the path of armament expansion. Contrary to the experience of Britain and America, the German war economy does not appear to have suffered at all from shortage of machine tools, general machinery or plant facilities—except temporarily in one or two isolated cases. On the contrary, according to all evidence, the machine tools and machinery stock were considerably in excess of actual needs, and remained so throughout the war. This is shown by the fact that almost the whole German industry worked on a single shift basis throughout the war; it left the great capacity reserve obtainable through double or triple shift working almost entirely unutilised.¹

It is even better shown however, by the fact that in contrast to British and U.S. experience where the machine tool industry was very much expanded and strained to the utmost to meet requirements, German machine tool production had hardly expanded after 1939; the machine tool industry itself was never subjected to close control, and remained, on the whole, under-utilised throughout the war, 30 per cent. of its capacity having been converted to direct munitions production. (The annual delivery of machine tools in 1938-44 is shown in Table 1).

¹ According to Saur, the head of the Technisches Amt of the Speer Ministry, 90 per cent. of all industrial workers were on the first shift, 7 per cent. on the second shift and 3 per cent. on the third shift.

TABLE I
ANNUAL DELIVERIES OF MACHINE TOOLS IN GERMANY 1938-44
 (In numbers)

Type of Machine Tool	1938	1939	1940	1941	1942	1943	1944
Planes and slotters	5,179	6,582	6,636	5,522	4,402	4,214	2,742
Engine lathes	29,880	31,009	34,882	35,405	31,330	24,866	19,822
Turner lathes and automatics	9,401	10,761	12,313	12,673	11,680	9,996	6,388
Drill presses and horizontal boring mills	31,210	35,941	36,871	38,193	29,056	27,291	22,781
Milling machines	13,308	13,692	16,760	15,636	14,043	10,942	7,883
Saws and filing machines	7,211	7,173	7,898	7,459	5,783	4,185	3,247
Grinding and polishing machines	28,870	30,987	29,523	30,948	26,681	23,333	17,011
Gear cutting machines	2,127	2,106	2,490	2,435	2,639	2,297	1,921
Hammers, forging and riveting machines	6,333	6,527	5,044	4,125	2,565	2,234	1,588
Sheet metal machines except presses	33,422	38,209	29,516	30,955	23,688	20,681	11,515
Presses, mechanical and hydraulic	8,276	9,006	9,835	7,392	8,099	5,759	9,606
Wire bolt and nut machines	7,587	7,342	7,647	7,164	5,933	4,168	3,931
Machines for combined processes ¹	—	—	—	—	—	—	600
Heavy special machine tools ¹	—	—	—	—	—	—	—
Ammunition machines ¹	—	—	—	—	—	—	—
Total machine tools	182,849	199,361	199,490	197,960	165,969	140,084	110,377

¹ These are special purpose types, but do not include all special purpose machine tools. A complete statistical separation of universal and special purpose machine tools had not been possible, many of the latter being included in other categories.

Source:—Statistical data prepared by the Wirtschaftsgruppe Maschinenbau for the Equipment Division of the U.S. Strategic Bombing Survey, at Saalfeld, Germany, July, 1945.

The explanation for this is to be found in the fact that both the stock of machine tools, with which Germany started the war, and her annual production of machine tools, were relatively large; while most of her machine tools (at the beginning, at any rate) were of the universal (multi-purpose) type which could easily be converted to purposes of war production. The German machine tool census of May, 1938, revealed the existence of 1,327,000 machine tools in German industry and this stock is estimated to have grown to well over 2 millions by 1943.¹ This contrasts with an inventory of 740,000 machine tools for Britain in 1943 and 1,529,000 machine tools in the United States in the same year.² In Germany throughout the war, there were around 2·4 employed per machine tool in the machine tool using industries. No similar estimate has been published for Britain; but on the basis of total employment in the metal working industries, the corresponding ratio for Britain might well have been twice as high.

Looking at the annual production of machine tools, (as shown in Table I) we find that the maximum German output of round 200,000 metal working machine tools in 1940 was over twice as high as the maximum British output of round 96,000 reached in 1942.³ Machine tool bottlenecks, if any, must have occurred in Germany in periods preceding the war. The machine tool industry underwent a remarkable expansion after 1934; the value of its 1938 output was two and a half times that of 1929.

With certain exceptions, the most important of which occurred in the synthetic oil and chemical industries, in the electric power system, and in the making of high grade (electric) steel, Germany's war production was at no time limited by her

¹ The Effects of Strategic Bombing on the German War Economy, *op. cit.*, Appendix Table 36.

² The scope of the U.S. census is narrower than that of the German; making appropriate adjustments, the U.S. inventory compares with a stock of 1,555,000 machine tools for Germany in 1943 (*Ibid.*, Table 37).

³ Cf. *Statistical Digest*, C.S.O., January, 1946, Table 49.

machinery equipment. She also had ample capacity in plant facilities. Though statistics on available factory floor space are lacking, it appears that new factory construction (apart from the industries mentioned and underground factory construction as a result of the air war) was moderate during the war, while the large industrial dispersal programmes occasioned by the air offensive were carried out without being handicapped by shortages of factory space.

MOBILISATION OF MAN-POWER.

It is when we come to an analysis of the German man-power figures that the limited character of her war effort is most clearly revealed. Germany, as is well known, had a remarkable economic expansion in the five years prior to the war. By 1938, her unemployment had been reduced to negligible proportions. To this extent she entered the war with fewer "man-power reserves" than Britain or America. But unlike Britain and America, she appears to have made no attempt to increase her man-power supply through an expansion of her gainfully occupied population. As Mr. Saunders has shown, in a paper presented to your Society,¹ Britain at the peak of mobilisation in 1943 increased her gainfully occupied population, of all ages, by some $2\frac{1}{2}$ millions, or 12·5 per cent. of the 1939 figure, despite the stationary total population.² Indeed, if war losses (in killed, prisoners and missing) are added to the working population actively engaged (as they should be) the figure becomes more like 2·8 millions, or 14 per cent. Similarly, the United States increased her gainfully occupied population (including war losses) by some $7\frac{1}{2}$ millions or just under 15 per cent., in addition to the natural increase in her working population by some $3\frac{1}{4}$ millions over the war period and the absorption of some seven millions unemployed.

¹ Man-Power Distribution 1939-45: Some International Comparisons.

² This figure allows for the decrease in domestic servants and counts each part-time worker separately.

TABLE II
MOBILISATION OF MAN-POWER IN GERMANY 1939-44
(Pre-war Reich, including Austria, Sudetenland, Memel)
(In millions)

Date	Civilian Labour Force			Armed Forces			Total Civilian Labour Force (3)+(4) (9)	Total Active Labour Force (7)+(9) (10)
	Germans		Foreigners and Prisoners of War (4)	Total Mobilized (5)	Cumulative Losses (5)-(6)	Active Strength (7)		
	Men (1)	Women (2)	Total (3)					
May 31, 1939	24.5	14.6	39.1	1.4	—	1.4	40.5	39.4
May 31, 1940	20.4	14.4	34.8	1.2	5.7	5.6	40.5	36.0
May 31, 1941	19.0	14.1	33.1	3.0	7.4	7.2	40.5	36.1
May 31, 1942	16.9	14.4	31.3	4.2	9.4	8.6	40.7	36.1
May 31, 1943	15.5	14.8	30.3	6.3	11.2	1.7	41.5	35.5
May 31, 1944	14.2	14.8	29.0	7.1	12.4	3.3	41.4	36.6
Sept. 30, 1944	13.5	14.9	28.4	7.5	13.0	3.9	41.4	36.1
							45.2	45.0
							35.9	35.9

Source :—Kriegswirtschaftliche Kraeftebilanz, (latest edition) Statistisches Reichsamt Abt. VI ; O.K.W. Zusammenstellung Ueber die personelle und materielle Ruestungslage der Wehrmacht ; Heeres-Personalamt.

Column (5) is the cumulative figure of the total numbers called up to the Armed Forces, without any deduction for discharges, losses, etc. It does not include those called up from outside the area of the pre-war Reich, e.g. Alsace-Lorraine, Poland or the Protectorate.

Column (7) is the cumulative figure of losses due to deaths, personnel taken prisoners-of-war and missing, discharges and net desertions as reported by German official sources.

Column (2) includes "helping family members" (mainly in agriculture), who numbered 5.5 millions in 1939, and who would not be counted as employed in British or U.S. statistics. Thus the number of women employed, on a definition comparable to British statistics, was only 9.1 millions.

The German overall man-power figures are shown in Table II. These reveal that the total gainfully occupied native population of the pre-war area of Germany, not deducting war losses other than air raid casualties has only increased by 1 million between 1939 and the peak figure of 1943 (of which 800,000 were men and only 200,000 women) the whole of which can be accounted for by the natural increase in the total population of working age over the period. In terms of the percentages of occupied population aged 14 and over to the total there was no change. There was an expansion in the total of gainfully occupied (not deducting war losses) by 7 millions, or some 17 per cent., but 6 out of these 7 millions were provided by the importation of foreign labour and prisoners-of-war, while the remaining 1 million were the result of natural increase.

The conclusion at once suggests itself that the failure of Germany to expand her gainfully occupied population during the war must simply be due to her having already mobilised these "hidden reserves" of labour power in 1939. Indeed, the figure of 40·5 gainfully occupied, out of a total population, (recorded at the 1939 census) of 79·4 millions, is extremely high; a much higher proportion than that of Britain or the United States at the same time. The difference, however, is only apparent; it is entirely due to a peculiarity of German statistical methods: the extremely generous way in which "unpaid family helpers" in agriculture are accepted into the ranks of the gainfully occupied. As the 1939 census shows,¹

¹ *Statistisches Jahrbuch*. 1940-41. Sect. I. Tables 10 and 20. The distribution of the occupied population as shown by the census of population of May 17th, 1939, was as follows:—

**GAINFULLY OCCUPIED POPULATION OF GERMANY
(PRE-WAR AREA) IN MILLIONS.**

	Wage Earners	Officials and Salaried Employees	Ind. Proprietors	Family Helpers	Total
Agriculture	2·5	·1	2·4	5·8	10·8
Industry and Handwork	12·7	1·9	1·6	·3	16·5
Trade and Commerce	2·3	2·6	1·3	·6	6·8
Public and Private Service (excluding household)	1·0	2·7	·3	·05	4·05
Domestics	1·5	—	—	—	1·5
Total—Civilians	20·0	7·3	5·6	6·75	39·7
Armed Forces					1·3
Grand Total					41·0

The small difference between 40·8 millions shown in Table II and the 41·0 millions shown in the Census indicates the scope of coverage of the Knafebilanz statistics. The difference between 40·8 shown in Table II and 40·56 millions shown in Table V is due to the fact that the figures in Table V were taken from the 1943 edition of the Knafebilanz, and were later somewhat revised.

out of a total agricultural population of 14·9 millions no less than 10·9 millions, or 73 per cent.—*i.e.*, rather more than the *whole* population aged 14 and over—is returned as occupied; and of these 10·9 millions no less than 5·8 millions represent unpaid family helpers. Moreover, the proportion of occupied to total agricultural population is equal in the case of men and women.

If both the agricultural population, and agricultural employment, are excluded from the figures, the percentage of gainfully occupied of the population aged 14 and over in 1939 was no higher than that of in Britain in the same year. In both countries it amounted to 85 per cent. of the male population and 35 per cent. of the female population. (The latter figure includes domestic servants.) The degree of labour mobilisation in 1939 was therefore no greater in Germany than in Britain.

In Germany, however, contrary to Britain, America, and most other belligerents, the number of native women occupied actually *fell* in the first two years of the war, (by about half a million); and the subsequent increase has barely lifted it above the pre-war level. If adjustment is made for the natural increase in population, the pre-war ratio of occupied women was never reached. A frequently adduced reason for this strange phenomenon is that the introduction of generous allowances to servicemen's wives induced many of the lower paid women to withdraw from employment. (Table III, giving the distribution of employment of German women shows that the fall was proportionately greatest in agriculture, industry and handwork; while there was an increase in the higher paid occupations, services and administration). Far reaching measures for the conscription of women existed on paper, but they were never carried out. In January, 1943, all

women between the ages of 17 and 45 were registered but not more than a few hundred thousand called up.¹ A serious attempt at calling up women was only made in connection with Goebbels' much advertised total man-power drive in the summer of 1944; but owing apparently to the administrative breakdown it added only 100,000 women to the total employed.

When we turn to the length of the working week, there is again no evidence of the working population having been made to work very long hours. The "sixty-hour week" was introduced by decree only at the end of July, 1944, and it is doubtful whether it was carried into effect on a serious scale. Prior to that, the sixty-hour week was only worked in the iron and steel industry; in the rest of industry, men worked 50-52 hours, women 40-44. The actual increase in hours between 1939 and March, 1944, was only 4 per cent. for wage earners as a whole. At the latter date actual hours worked were affected by air raids. But as Table IV shows, even at the time hours were longest (in the month of September, 1941) they were below the average reached in Britain.²

¹ The question of the mobilisation of women was a subject of acute controversy among the German leaders. The Nazis, (chiefly Sauckel, the Plenipotentiary for Labour Mobilisation) were against the conscription of women, in accord with their "woman's place is in the home" philosophy and insisted that all labour requirements should be satisfied out of the reserves of occupied Europe. But large-scale deportations led to the large-scale creation of guerillas and *maquis*; in the closing year of the war it proved impossible to raise the number of foreign conscripts at work.

² Cf. *Statistical Digest*, op. cit. Table 109.

TABLE III
THE EMPLOYMENT OF GERMAN WOMEN BY INDUSTRY DIVISION (PRE-WAR AREA)
(In thousands)

Date	Agriculture	Industry, Handwork and Power	Trade, Banking, Insurance and Transport	Administration and Services	Domestic Service	All Divisions
May, 1939	6,049	3,836	2,227	954	1,560	14,626
May, 1940	5,689	3,650	2,183	1,157	1,511	14,386
May, 1941	5,369	3,677	2,167	1,284	1,473	14,167
May, 1942	5,673	3,537	2,225	1,471	1,410	14,437
May, 1943	5,665	3,740	2,320	1,719	1,362	14,806
May, 1944	5,694	3,592	2,219	1,746	1,301	14,808
September, 1944	5,756	3,636	2,193	1,748	1,287	14,897

Source :—Kriegswirtschaftliche Kräftebilanz, latest edition, Statistisches Reichsamt, Abt. VI.

TABLE IV
AVERAGE WEEKLY HOURS WORKED
BY WAGE EARNERS IN GERMANY

Date	All Industries	Production Goods	Consumption Goods
1929 ...	46.0	46.3	45.7
1933 ...	42.9	43.0	42.3
1938 ...	46.5	47.8	44.9
September, 1939	47.8	48.8	43.5
March, 1940	47.6	48.5	43.8
September, 1940	49.2	49.9	45.9
March, 1941	49.1	49.9	45.8
September, 1941	49.5	50.3	45.9
March, 1942	48.7	49.6	45.0
September, 1942	48.7	49.5	44.8
March, 1943	49.1	49.9	45.3
September, 1943	47.9	48.9	43.1
March, 1944	48.3	49.2	43.3

Source :—*Statistisches Jahrbuch, 1938-40* ; Ergebnisse der amtlichen Lohnerhebungen, 1944 ; *Statistisches Reichsamt, Abt. Sozialstatistik*.

There is, finally, the question of the re-distribution of the labour force as a result of the war. Table V shows the distribution of the total labour force, in Britain and in Germany in 1939 and 1943, in terms of the British White Paper's employment categories,¹ while Table Va shows the grouping of the civilian labour force at the two dates in terms of percentages. (Owing to the difference in the definition of agricultural employment, mentioned above, agriculture was excluded from the latter Table).

¹ Every effort was made to adjust German statistics so as to make them comparable with the British. Owing to differences in the definition of individual categories, this may not have been completely successful in each individual case; the comparisons between broad divisions, however, (such as "Group I industries") should be fairly reliable. The scope of activities included under "Government service" is narrower in the case of Germany than Britain; the production of leather and leather goods is included under "Textiles, etc." in the German statistics, but not in the British; and there may be a few other differences of this kind.

It will be noted that the expansion in the total labour force,¹ the percentage change in the civilian labour force, and the proportion of the total occupied population in the Armed Forces in 1943 were all about the same in the two countries. But while in Britain, Group I industries expanded their employment by 68 per cent., in Germany they increased by only 19 per cent. On the other hand the contraction of Group III (civilian) industries was appreciably less in Germany than in Britain, while the expansion of Government employees was greater. The clearest test of a lack of "total mobilisation" in Germany may be found in the case of domestic servants. These show a very modest reduction in Germany; while their number in Britain was estimated to have fallen by two-thirds. As Table Va shows, the absolute proportion of the civilian labour force in the war industries (Group I) was less than in Britain (27 against 32 per cent.) while that in Government service was considerably greater (15 against 11 per cent.). The proportion of labour force in the distributive trades, on the other hand, was even in 1943 considerably greater in Britain than in Germany (12 against 8 per cent.).

It is clear from these comparisons that, in the middle of 1943 at any rate, Germany's man-power was not nearly so thoroughly mobilised for war purposes as Britain's. There is no evidence, however, that her war production programme was seriously hampered by man-power shortage in that period. (Her war production was considerably higher in the following year, after the Wehrmacht had called up a further 1·8 million German men who could be only partially replaced by a further intake of foreign labour). The explanation, as will be argued later on, is rather to be sought in the fact that the expansion of armament production, like the expansion of the Armed Forces, could only proceed with a certain momentum; and having decided on a limited war effort in the early years of the war, Germany could no more make full use of her man-power for war purposes in 1943 than Britain could in 1940.

¹ The German figures include of course foreigners and prisoners-of-war. The latter therefore secured for Germany the same expansion as the greater mobilisation of internal man-power and the elimination of unemployment secured for Britain.

TABLE V
MOBILIZATION OF MAN-POWER IN GREAT BRITAIN AND GERMANY 1939-1943
(In thousands)

	Great Britain			Germany		
	June 1939	June 1943	Index (1939=100)	31st May 1939	31st May 1943	Index (1939=100)
Group I— Metal, Chemical and Allied Industries ¹ ...	3,106	5,233	168·4	5,778	6,863	118·8
Group II— Agriculture ² ...	5,530	5,632	101·8	18,419	19,227	104·4
Mining ...	...	1,113	1,118	100·4	11,224	100·7
Government Services ³ ...	...	873	818	93·7	766	903
Gas, Water, Electricity	...	1,385	1,786	129·0	2,894	3,879
Transport ⁴ ...	...	232	200	86·2	231	206
Food, Drink, Tobacco	...	1,273	1,191	93·6	1,624	1,799
Group III ...	...	654	519	79·4	1,680	1,139
Building, Civil Engineering	...	10,477	6,779	64·7	14,969	10,757
Textiles, Clothing, Boots and Shoes	...	1,310	726	55·4	2,534	1,256
Other Manufactures ⁵ ...	...	1,759	1,154	65·6	2,769	49·6
Distributive Trades	...	1,444	968	67·0	2,475	2,411
Other Services ⁶ ...	...	2,887	2,009	69·6	3,428	76·2
Domestic Service ...	...	1,882	1,422	75·6	2,181	1,833
Armed Forces ...	...	1,200	400	33·3	1,582	1,442
Grand Total ...	...	557	5,068	909·8	1,400	9,500
Total excluding Armed Forces and Agriculture	...	19,670	22,712	115·0	40,566	46,347
	...	18,000	16,426	91·3	27,942	25,546
						114·2
						91·4
						91·2
						731·5

NOTES—Table 5.

Source:—*Great Britain—Statistics relating to the War Effort of the United Kingdom, Cmd. 6564. Nov. 1944*—for all categories except domestic service, which is unofficial estimate.

Germany—Kräftebilanz, 1943 ed. : Handwork employment from Betriebszählung, 1939, and a report of the Planungsamt, Speer Ministry, 1944.

¹ Iron and Steel and their products, non-ferrous metals and their products, machinery, transportation, equipment (aircraft, tanks, ships and vehicles), electrical products, instruments, optical goods, chemicals and petroleum products. German data cover industry groups 12-15, 20-27, 31-33 and 51, together with related fields of handwork production.

² German agricultural employment includes "helping family members" who numbered 5.8 millions in 1939.

³ Government services include post office employees. German Government services exclude the following divisions of the Kräftebilanz : Reichskulturrat, Gesundheitswesen, NSRFB and Reichsbund für Leibesübungen.

⁴ Excluding post office employees.

⁵ Lumber and lumber products, paper and allied products, stone, clay and glass products and miscellaneous manufacturing. The British figures include leather and leather products other than boots and shoes. German data cover industry groups 41, 43-46, 52-54 and related handwork fields.

⁶ For Britain see Appendix A, footnote 3, Cmd. 6564. German figures include divisions 10-12 and 16-18 of the Kräftebilanz.

TABLE V_a
PERCENTAGE DISTRIBUTION OF THE CIVILIAN LABOUR FORCE
EXCLUDING AGRICULTURE
GREAT BRITAIN AND GERMANY
1939 and 1943

	Great Britain			Germany		Index (1939=100)
	1939	1943	Index (1939=100)	1939	1943	
Group I— Metal, Chemical Allied Industries						
	17.3	31.7	183.2	20.7	26.9	130.0
Group II	24.5	27.3	111.4	25.7	31.0	120.6
Mining	4.8	5.0	104.2	2.7	3.5	129.6
Government Services	7.7	10.8	140.2	10.4	15.2	146.2
Gas, Water, Electricity	1.3	1.2	92.3	.8	.8	100.0
Transport	7.1	7.2	101.4	5.8	7.0	120.7
Food, Drink, Tobacco	3.6	3.1	86.1	6.0	4.5	75.0
Group III	58.2	41.0	70.3	53.6	42.1	78.5
Building, Civil Engineering	7.3	4.4	60.3	9.1	4.9	53.8
Textiles, Clothing, Boots, Shoes	9.8	7.0	72.2	9.9	8.3	83.8
Other Manufactures	8.0	5.9	73.8	8.9	7.1	80.9
Distributive Trades	16.0	12.2	76.3	12.3	8.4	68.3
Other Services	10.5	8.6	81.4	7.8	7.7	98.7
Domestic Service	6.7	2.5	37.3	5.7	5.6	98.2
Total	100	100		100	100	

THE SUPPLY OF RAW MATERIALS.

Germany's extreme dependence on imports for all kinds of raw materials was always regarded as her fatal weakness in case of a prolonged war. Even in the case of the two chief war materials which were produced inside her territory—steel and aluminium—she was dependent on imports for almost the whole of her iron ore and bauxite requirements. The Four Year Plan of 1936 was introduced to mitigate this weakness, chiefly through the development of synthetic production of oil, rubber, textile fibres and fats, the development of home produced iron ore in Central Germany and of aluminium and magnesium production. The success of this plan in achieving self sufficiency was very limited. At the outbreak of the war Germany was still dependent on foreign supplies for 70 per cent. of her (peace time) consumption of mineral oil, and an equal percentage of iron ore, for 83 per cent. of copper consumption, and for her whole consumption of manganese, chrome, nickel, wolfram, tungsten, and a host of other raw materials. Apart from nitrogen and coal there was no war material of importance in which home production could cover peace-time consumption, still less any additional requirements in war. Nor did she succeed in accumulating a war reserve of any magnitude. For most commodities her stocks, at the outbreak of war, were adequate only for six months or less of peace-time consumption, with the exception of manganese, where stocks were sufficient for 18 months; chromium, tungsten and iron ore, where they were sufficient for 8-10 months.

Yet she managed for five years without any serious embarrassment to her war effort owing to lack of basic materials. This was due to a combination of circumstances. In the case of copper and ferro-alloys the Germans found that consumption could be drastically cut without real detriment to the quality of armaments, and considerable quantities could be reclaimed from scrap. Annual consumption of copper, wolfram, molybdenum and cobalt was reduced, in each case, by about two-thirds between 1939 and 1943. The victories of 1939 and

1940-41 led to the capture of considerable stocks of these materials and also to new sources of supply: chromium from Bulgaria and Greece; nickel and molybdenum from Finland and Norway; copper from Jugoslavia, Norway, Finland; manganese from Russia; mercury from Italy and Spain; bauxite from Hungary, France, Jugoslavia and Italy. Sometimes these territorial conquests were only just in time to relieve the situation at a very critical moment. In the case of manganese which is essential for steel production and the use of which could not be substantially curtailed, stocks (despite considerable captures in France) were down to four months' current consumption when the occupation of the Nikopol deposits relieved the situation for the rest of the war.

The development schemes for the home production of basic materials were discontinued after the beginning of the war, with the exception of oil, rubber, aluminium, electric furnace steel and electric power. Synthetic rubber production was raised from 5,000 tons to 134,000 tons per annum between 1939 and 1944; the latter was adequate to cover all requirements. In the case of oil, synthetic production was raised from 1·3 million tons in 1938 to an annual rate of 6 million tons by early 1944, while crude oil production was expanded (through the development of Austrian fields) from 0·6 to 2·0 million tons. Together with the Rumanian and Hungarian supplies of about 2·5 million tons, these were adequate to meet the needs of the armed forces, whose pattern of consumption was of course itself adjusted to the oil situation. Oil was always short for Germany, in the sense that means of warfare involving heavy oil consumption—such as a fully motorised army, or a large force of heavy bombers—had to be foregone. But within the limits of the kind of war strategy and war equipment adopted, the oil supply was considered adequate up to the beginning of the aerial attacks on the oil industry.

The commodity which more than any other dominated the strategy of the German war leaders was steel. Steel capacity formed the basis on which the German General Staff

planned the size of the army and the war production programme ; and in the early stages of the war it was the supposed lack of steel which prevented the adoption of more ambitious schemes of mobilisation. This steel shortage, as it subsequently turned out, was a delusion. The officers of the Wehrmacht grossly over-estimated both the military steel requirements and the steel necessary for the maintenance of the civilian economy. Thus in 1939-40 out of a total monthly supply of 1·8 million tons, 900,000 tons were allocated to the armaments programme ; but the allocations were on far too generous a scale in relation to production schedules and a considerable part of the military allocation was diverted to civilian uses and stocks. Four years later, a 50 per cent. higher monthly allocation of some 1·4 million tons was adequate for an armament production over three times as large. After the conquest of Western Europe total monthly steel supply rose up to 2·6 million tons, so that until the liberation of France, there was never any real steel shortage ; in fact, considerable stocks of finished steel (an estimated 15 million tons in the hands of manufacturers) were accumulated. There was a shortage, however, from early 1944 onwards, in certain critical rolling mill products (notably heavy steel plates and tubes) the production capacity of which was relatively short and was not expanded during the war.

The other important basic commodity whose supply was considered inadequate was electric power. Here the capacity was considerably expanded during the war, but the expansion barely kept pace with growing requirements. To a lesser extent the Germans were also "tight" on coal. There was an appreciable fall in the output per man-shift, which was only just offset through the increase in labour engaged in mining.

There is no doubt that of the three main factors limiting the war potential, the raw material base was the narrowest. Steel, coal, and electric power would ultimately have imposed a more severe limitation on the expansion of military output than either the man-power shortage or the equipment shortage. But even here it was a case of a potential, rather than an

actual limitation ; it was not operative throughout the major part of the war ; it would have become a limiting factor only at production levels which were approached, rather than attained, in the critical summer months of 1944 when the combined effect of the air war and the loss of territory brought about a reversal of the trend of expansion. Throughout most of the war period German war production was very much below the level which the raw material supply would have rendered possible.

WAR PRODUCTION AND CONSUMPTION.

Two further comparisons between the British and the German war effort should be added to complete the picture. One refers to the comparative output of different classes of armaments, the other to the civilian expenditure on consumption.

Table VI shows the comparative production of particular classes of armaments in Britain and Germany in the years 1940-44. It shows that in the first three years of the war, German production was less than the British in a number of important categories although it greatly exceeded the British in the two final years. In aircraft, tanks and other armoured vehicles and lorries German production was lower in each of the three years 1940-42¹; in the case of guns in 1941 and 1942, if all guns over 20 mm. are counted together. As regards tanks, a comparison on the basis of numbers is not perhaps satisfactory, since the German types produced in those years were heavier than the British. This cannot be said however of aircraft, of which the British production was considerably in excess of the German already in 1940, and even more in later years.

¹ No precise figures are available of the German production of wheeled vehicles for 1940, but it is known that production was considerably lower in that year than in 1942, which in itself was lower than the British production in this category in 1940 and 1941.

TABLE VI
COMPARISON OF OUTPUT OF PARTICULAR CLASSES OF ARMAMENTS,
GERMANY AND THE UNITED KINGDOM, 1940-44

	1940	1941	1942	1943	1944
	Germany	United Kingdom	Germany	United Kingdom	Germany
Military Aircraft :—					
Fighters	3,100	4,300	3,700	7,000	5,200
Bombers	4,000	3,700	4,300	4,700	6,500
Other types ¹	1,800	1,900	2,100	1,800	1,600
Trainers	1,300	5,100	900	6,600	1,200
Total : (numbers)	10,200	15,000	11,000	20,100	14,200
Total : Structure weight (m. lbs.)	59†	59	64	87	92
Bombs (Filled weight 1000 tons)	*	48	245	143	262
Armoured Vehicles :—					
Tanks ²	1,600	1,400	3,800	4,800	6,300
Other ³	500	6,000	1,300	10,500	3,100
Wheeled Vehicles (thousands)					
Heavy type	* 112	62	110	81	109
Light cars and vans	* 21	*	17	29	16
Motor Cycles	* 68	*	71	*	75
Heavy Guns (75 mm. and over)					
Field medium & heavy artillery					
Tank	4,400	1,000	4,700	3,800	5,100
Anti-tank	470	—	650	—	2,200
Anti-aircraft	—	1,400	—	2,400	—
Total	6,300	1,900	6,300	7,800	5,300
Light Guns (over 20 mm. and under 75 mm.)					
Tank	—	—	240	100	6,000
Anti-tank	—	—	430	1,500	2,100
Anti-aircraft	—	—	—	1,000	2,700
Total	170	1,350	81	1,358	3,400
Small Arms					
Infantry Rifles (1000's)	170	30	320	78	46
Infantry Machine Guns (1000's)					

(For Reference Marks see Notes overleaf.)

	1940	1941	1942	1943	1944
	United Kingdom	United Germany Kingdom	United Germany Kingdom	United Germany Kingdom	United Germany Kingdom
Ammunition (Million rounds)⁴					
Heavy Gun (75 mm. and over)	27	7	27	14	57
Light Gun (under 75 mm.)	*	*	*	9	42
Including 20 mm. ...	3	8	1,120	1,340	2,190
Small Arms (20 mm. & under)	540	1,340	1,340	1,340	3,170
Naval Armaments	2,950	*	*	*	3,010
Major war vessels completed (1000 tons Standard Dis- placement) ...	222	162	346	193	300
Heavy Guns (75 mm. & over)	620	300	740	1,020	1,060
Light Guns (excluding 20mm.)	*	860	380	1,730	1,070
Torpedoes ...	940	*	14,200	1,900	11,000
Heavy Gun Ammn. (1000's)	*	*	840	2,450	1,150
Light Gun Ammunition (ex- cluding 20 mm.) (1000's)	*	3,100	4,100	5,400	35,200
					8,700
					3,700
					7,800
					7,100
					4,100

NOTES.—United Kingdom figures refer to United Kingdom production only. German figures include all deliveries to the Wehrmacht.

¹ Including all naval aircraft, general reconnaissance, transport, rescue and other.

² Tanks and self-propelled guns.

³ For Germany includes armoured reconnaissance cars, armoured half-tracks, armoured infantry and gun carriers.

For United Kingdom includes armoured cars, scout cars and carriers.

⁴ Excluding Naval Ammunition.

⁵ For Germany includes submarine production only.

For United Kingdom includes completions of all major war vessels.

[†] Estimated.

* Not available.

Source :—Statistische Schnellberichte zur Rüstungsproduktion, February 1945, issued by the Speer Ministry ; Speer's report on Armament Production, dated 27 January, 1945. (Wherever possible German figures were checked by the acceptance figures of the Armed Forces) Statistics relating to the war effort of the United Kingdom, and 6,564 ; the effects of Strategic Bombing on the German War Economy.

TABLE VII
CIVILIAN EXPENDITURE ON CONSUMPTION
IN GERMANY AND THE UNITED KINGDOM
1938—44

Indices based on constant prices
 1938 = 100

Year	Germany (Pre-war area)	United Kingdom
1938	100	100
1939	108	100
1940	100	87
1941	97	81
1942	88	79
1943	87	76
1944	79	77

Source:—Germany—U.S. Strategic Bombing Survey, Overall Economic Effects Division Special Paper No. 1, *The Gross National Product of Germany*, Table II.

United Kingdom—*The Impact of the War on Civilian Consumption in the United Kingdom, United States and Canada*, H.M.S.O. 1945. Table IIa.

The comparative movement of the civilian expenditure on consumption is shown in Table VII. This shows that aggregate real consumption in Germany was not really restricted as compared with 1938² until 1942, and even then it remained a higher proportion of the pre-war level than that of Britain, until 1944. (This estimate is based on German statistics relating to national income and expenditure. It is not inconsistent with the figures relating to the production of consumers' goods, if allowance is made for the division of consumers' expenditure between food, rent, services and manufactured goods).

² Movements of war-time consumption taking 1939 as the base year are misleading, for 1939 was a "bumper year," when civilian consumption was much higher than at any previous period. The pre-depression level of consumption was re-gained in Germany by 1938.

WAR PLANNING IN PERSPECTIVE.

To attempt to explain this riddle—why Germany did not have a more “total” war effort—it is necessary to go back and analyse German pre-war plans and policies. The idea of preparing the country for war or at any rate for war-like “adventures” was undoubtedly dominant in the minds of the Nazi leaders right from the beginning of their regime. On the issue of re-armament they had the fullest support of the Army and of the industrialists. Sharp differences arose however between the Army and Hitler as to the manner in which re-armament was to be carried out, and the date by which the Armed Forces were to be “ready” for adventures. The Army leaders (chiefly among them Gen. Thomas, who was in supreme charge of industrial re-armament) wanted to prepare the country for all eventualities; to be capable of fighting a prolonged war against a combination of major powers. This meant a steel capacity of 50 million tons, the maximum development of home-produced iron ores, of the synthetic production of oil and rubber, the accumulation of a huge war chest in all imported war materials. It would have also meant (in the Wehrmacht’s estimate) ten year’s preparation. In contrast to this plan of “re-armament in depth,” (to use Gen. Thomas’ phrase) Hitler wanted “re-armament in width”; maximum concentration on finished munitions, the maximum rate of increase in the number of trained divisions, readiness to strike at the earliest possible moment. He further wanted to allow the civilian standard of living to rise at the same time, to at least the pre-depression level. For all this there was the labour of five million unemployed workmen to draw upon.

Hitler undoubtedly thought that Germany’s main hope for achieving world domination was through superior speed, rather than superior strength. He wanted to secure sufficient lead in the international armament race to gain his ends through lightning blows delivered at the right moment, rather than await the results of full-scale war preparations which would have given time for her enemies to get prepared as well. In other words, he wanted a war the outcome of which depended

not on steel, man-power, and the other fundamental elements of war-making power, but on the number of divisions immediately ready for action.

The Four Year Plan of 1936 was the outcome of a rather ineffectual compromise between these two view points. It provided for a certain minimum of basic war preparedness—more than enough for a *blitzkrieg* lasting for a few weeks, but not nearly enough for a war of attrition lasting for years. The rate of re-armament "in width"—*i.e.*, the rate of increase in immediate striking power—was, in the event, limited more by the Army's own ability to grow at a fast enough rate than by the limitation of industrial resources.

The "most favourable moment, which must not be allowed to pass" appeared in Hitler's view, in the closing years of the 1930's; and so after the abortive attempt of 1938, he began with the attack on Poland in 1939. At that time Germany produced but sixty tanks, 1-2 U boats, and 6-700 aeroplanes a month. But she had some seventy newly equipped divisions—fully adequate for the purposes of a minor *blitzkrieg*. The Polish campaign went entirely according to plan. The Norwegian and later the French campaigns further justified the Nazi faith in the *blitzkrieg* conception. Both ended in complete victory within a very short time and with an unexpectedly small expenditure of resources. Indeed, from the point of view of the Nazis, it would have been far better if they had not succeeded quite so easily. For the attack on Russia was decided upon then in the confident expectation that the same experience could be repeated; and that it would not require far greater preparations than those made for the earlier campaigns.

Thus in the critical nine months that separated the decision to invade Russia from the actual beginning of the campaign, no real attempt was made to augment military strength, even though, after the conquest of France, there was no serious obstacle to an all-round expansion. The rate of armament production was continued at more or less the same level. The

first three months of the Russian campaign did, in fact, go entirely "according to plan"; and at the end of September, Hitler, believing the war about won, ordered a large scale reduction in armaments production. This order, even though only partially carried out, caused important reductions in stocks, particularly of ammunition, the effects of which could never be fully overcome afterwards.

The defeat before Moscow, and the entry of the United States into the war in December, 1941, brought the German leaders for the first time face to face with the prospect of a prolonged war with the three greatest powers ranged against them. Hitler still hoped to finish the war with Russia in the following summer, and then have leisure to prepare for the Anglo-American assault with Russia's vast resources at his disposal. So again the cry was for a maximum short-term increase of armaments rather than an expansion of basic resources.

The means to bring about this increase was sought in the rationalisation of production and its instrument was found in Albert Speer, Hitler's architect, who in February, 1942, was appointed Minister of Armaments. Speer's administration in the course of the following two-and-a-half years was the single great success which the German war economy can record, and the only one that will retain a more than historical interest. Speer's powers over the economy were limited. At first his control extended only to industries producing land armaments. From November, 1943, this was extended to naval armaments; from March, 1944, to fighter aircraft, and only from June, 1944, onwards, to the armament industry as a whole. He had no control at any time over labour mobilisation, or labour allocation between war production and the civilian economy.

Speer set about replacing the existing bureaucratic machinery of control with a new organisation (consisting of "Committees" and "Rings") which was based, not on a division according to industries, but on a division according to end-products (such as tanks, guns, ammunition, etc.). On each

Committee were represented all firms who were engaged in producing a particular armament, without regard to their other activities.¹ All the members were technicians and production managers attached to the various firms ; directors or proprietors were only admitted if they happened to be high grade engineers. The most efficient production engineer of any industry was selected as the Chairman of the group (regardless of the importance of the firm he represented). In selecting the Chairman and members, no regard was paid to political affiliations (an important departure from a main Nazi principle)² but there was an upper age limit of 40. These Committees were charged with the task of increasing production by securing maximum economy of labour and materials, and optimum utilisation of capacity. This was to be brought about through simplification of designs, standardisation of components, concentration of production in the most suitable plants, reduction in the number of different armament orders given to a single firm, the exchange of patents and secret processes and the general adoption, by all firms, of the most efficient processes of production.³ The result of this policy was reflected in a more than threefold increase in German armament production.

Chart I shows the general index of finished armament production, prepared by Dr. Rolf Wagenführ, of the Planungsumt of the Speer Ministry, which covered about 90 per cent. of the total output of finished armaments and is the best available indicator of military output as a whole. It discloses three distinct levels of expansion, each of which raised production by about half the pre-existing level. The first spurt, beginning in March, 1942, raised the general level

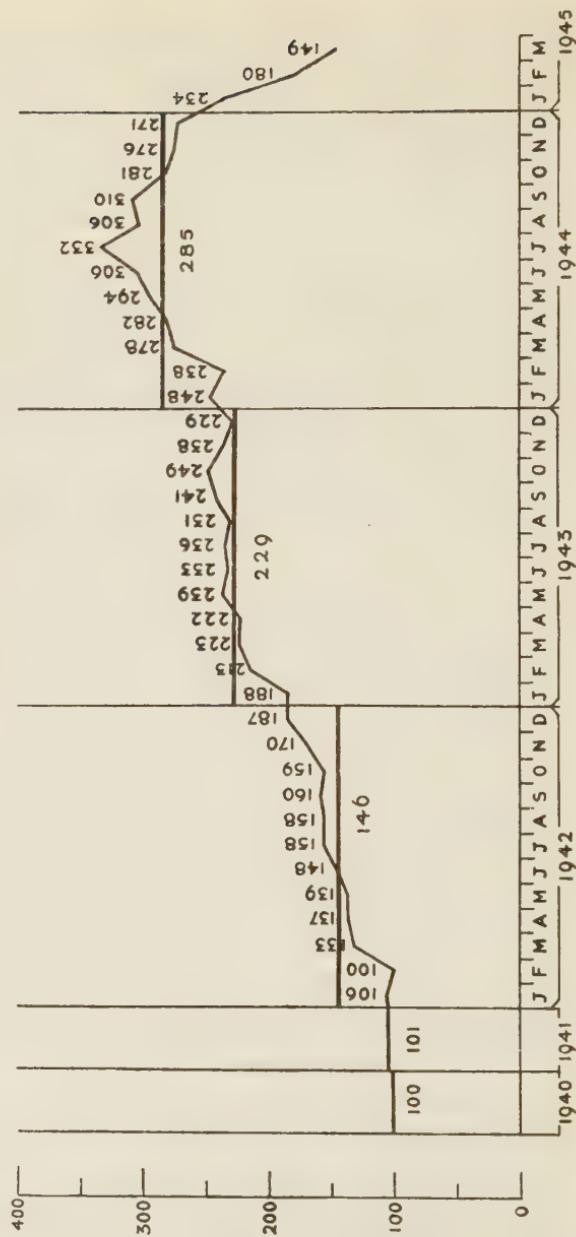
¹ There was a hierarchy of such Committees—e.g. to the Main Committee Tanks were subordinated the Special Committee Tank Engines which had a Sub-Committee Crankshafts, etc.

² Up to that time, the holders of all important parts had to be party members ; a severe limitation on efficiency, as the first-class technical brains usually kept out of the party.

³ According to Speer, "The production engineers who composed these committees became so enamoured with the technical problem of raising productivity that they were ready to overlook entirely the special interests of the individual firms they were supposed to represent."

CHART I.
THE COURSE OF ARMAMENTS PRODUCTION. (COMBINED INDEX OF FINISHED ARMAMENTS)

Average, 1940=100



by about 55 per cent. in July. In November, 1942, a second spurt began which raised the general level of output another 55 per cent. by May, 1943. With January, 1944, a final spurt began which raised production another 45 per cent. by July, 1944. This was the peak ; in the following month the decline set in, operating with accelerating force from December, 1944, onwards. By March, 1945, (the last month for which figures are available) the general index was down to the level of June, 1942.

In the first spurt more or less all categories participated ; the second spurt was most notable for an almost threefold increase in tank production ; while the last spurt showed an extraordinary increase in aircraft. (The increase in various armament categories is shown in Table VIII.)

This increase was not achieved, of course, without an increase in labour engaged on armament production. But as is shown in Table IX, the increase in the labour force on armament orders was relatively modest, the total increase between December, 1941, and June, 1944, being only 28 per cent. Thus the bulk of the increase in production was secured through an increase in productivity. In this the simplification of designs, a rational allocation of production among plants and the introduction of mass production techniques were equally important. Curious as it may sound, German industry until recently was still largely dominated by the methods of craftsmanship, turning out high quality products with a wasteful use of skilled labour and materials ; employing almost exclusively multi-purpose machine tools which required skilled labour to operate them. Outside the motor car industry, line-assembly and the use of single purpose machine tools was practically unknown.¹ One of the achievements of Speer and his associates consisted therefore in the introduction of techniques into Germany industry which were used by the

¹ But even in the motor car industry there were spectacular increases in productivity due to standardisation of types. Thus while at the outbreak of the war, there were 76 types of lorries currently produced, this was cut to 18 types by 1943 and to only 9 types by the end of 1944. In consequence, output per man-hour, over the industry as a whole, was more than doubled (in certain cases more than trebled) despite the fact that the proportion of skilled workmen in the total labour force was cut by a half.

TABLE VIII
THE EXPANSION OF GERMAN ARMAMENTS PRODUCTION IN 1942-44
1941 = 100

Category	Index	1st Level (July-Oct. 1942)	2nd Level (August-December, 1943)	Peak Level (July, 1944)	Index	Percentage change from 1st Level	Percentage change from 2nd Level	Index	Percentage change from Peak Level
Aircraft	144	228	58	378	66	139	-63		
Tanks	161	484	195	727	50	273	-62		
Weapons	137	239	74	362	51	208	-42		
Ammunition	197	251	27	313	25	154	-51		
Powder	150	217	45	218	0	125 ¹	-43		
Vehicles	129	147	14	127	-14	37 ¹	-71		
Tractors	184	335	82	398	19	162 ¹	-59		
Naval Construction	129	176	36	126	-28	99	-21		
Total	157	235	50	329	40	147	-55		

Source:—Schnellberichte zur Rüstungsproduktion, Reichsministerium für Rüstung und Kriegsproduktion,
Planungsamt.

¹=Estimated from other information.

TABLE IX
MAN-POWER ENGAGED IN ARMAMENT PRODUCTION, GERMANY AND THE UNITED KINGDOM
(In millions)

	Germany				United Kingdom			
	Army	Air Force	Navy	Quartermaster Stores	Total engaged in end-products	Basic materials and components	Ministry of Supply	Ministry of Aircraft Production
December, 1941	1.4	1.8	.6	.1	3.9	.8	4.7	1.5
January, 1942	...	...	...	...	...	...	...	1.3
December, 1942	1.8	1.9	.6	.1	4.4	.9	5.3	1.7
January, 1943	...	...	...	...	...	...	...	1.6
June, 1943	1.8	1.9	.6	.1	4.4	1.0	5.4	1.6
July, 1943	...	...	...	...	...	...	...	1.7
December, 1943	1.9	2.1	.5	.1	4.6	1.0	5.6	1.5
January, 1944	...	...	...	...	...	...	...	1.8
June, 1944	2.0	2.4	.5	.1	5.0	1.0	6.0	1.4
July, 1944	...	...	...	...	...	...	...	1.7

German figures refer to December and June, British to January and July.

Note : British and German figures are not strictly comparable, as German figures refer to employment in "A" firms only, which is estimated to have taken up about 80 per cent. of the total employed in armament production. British figures refer to the numbers employed on orders for the three supply departments in the engineering, ship building, metals and chemical industries, excluding iron and steel.

Source :—Britain, Cmd. 6564, Table 2, Germany, Reichsministerium, für Rüstung und Kriegsproduktion, Centralamt, Abt. Arb. E.Wi., (Stat.).

American and some of the British armament industries from the start.¹

The effects of rationalisation were most spectacular perhaps in the case of the aircraft industry. This was a jealously guarded preserve of Göring, who steadily refused to allow any share of control to the Speer Ministry. At the end of February, 1944, however, the Allied Air Forces succeeded, in a series of blows, in knocking out 70 per cent. of fighter assembly plants. As a result, the control of the fighter aircraft production was handed over to Speer. Extremely energetic rationalisation measures were put in hand immediately: the number of models in production was severely cut, components were standardised, and designs simplified (though not, according to the Ministry's claim, at the expense of performance); while the salvaged machine tools of the destroyed plants were set up under canvas. As a result, the pre-raid level of production was exceeded by April and nearly doubled by July, with a no more than 15 per cent. increase in the industry's labour force.²

The picture that emerges from a study of the years 1942-44 is that of an economy rapidly trying to build up its war effort to the stage of total mobilisation, but never attaining the stage at which the country's war potential would have been fully exploited. From September, 1944, onwards, the disorganisation caused by the air attacks on the railway system, and the loss of territories in the West and East caused a decline in production, followed by a complete industrial collapse in the early months of 1945. According to the officials of the Speer

¹ The saving of labour was accompanied by equally impressive savings in raw materials. Thus in the case of weapons, the overall ratio between the required input weight and finished weight of steel was reduced from 4 : 1 to 2 : 1, between 1942 and 1944.

² No doubt this performance was greatly aided by the fact that the industry was previously highly inefficient, measured by any standard. This is evident also from a comparison of the labour force engaged on aircraft production in Britain and Germany as shown in Table 9, if account is taken of the fact that the British production was considerably in excess of the German, as measured by numbers or structural weight; and that the German figures, unlike the British, do not include all the workmen engaged on armament orders.

Ministry, war production was still expanding rapidly when these factors supervened, and in their absence, the level of munitions production would have risen by another 20-30 per cent. before capacity output, as determined by raw material supplies, would have been reached. The factors therefore which really limited German war production in the last three years of the war are to be sought simply in those elements of inertia in the economic system which set a limit to the rate at which adjustment and expansion can proceed, rather than in any absolute shortage either of man-power, equipment, or raw materials. No doubt, with a better system of co-ordination, a greater readiness to sacrifice civilian standards and to mobilise labour, the process of expansion could have been speeded up further. But the basic fault was the failure to plan for expansion and total mobilisation in the earlier years. It was due to a breakdown of strategy at the highest level, caused by the virtual absence of any effective machinery for thorough and systematic discussion of requirements and potentialities.

It would be a mistake to conclude from this analysis that the German war economy provides any evidence of the inefficiency of "planned" or "controlled" economies. Its failures were due to the absence of planning and co-ordinated control, and not to any abandonment of a *laissez faire* system. But it will stand as a monument to the inefficiency of a system of personal dictatorship. Those of us who are fortunate enough to live in a free society will take comfort from the fact that even in the matter of efficiency of administrative control and co-ordination, the "cumbersome" methods of democratic government should prove so superior to systems based on the ruthless exercise of personal power.

The Soviet Economic System

Dr. Baykov¹ writes of the development of the Soviet Economic System as an historian. His book is divided into four main sections, corresponding roughly with the periods of War Communism, N.E.P., the First Five-Year Plan, and the Second and Third Five-Year Plans. Under each section the problems of agriculture, industry, labour, trade and finance are dealt with in separate chapters. As Dr. Baykov writes in his preface "this method of exposition may give the impression of a certain lack of continuity." In addition it makes the book difficult to read, especially since the subjects are dealt with in a different order in each section. I would recommend economists to read this book not in the order in which it is written but by picking out from every section the chapters relating to each subject.

As I read through this book I looked for answers to two questions. First, what principles for planning the allocation of economic resources did the Russians evolve in the course of twenty years' experience (Dr. Baykov's study doesn't extend beyond the late 1930's) to replace those which operate in a competitive capitalistic economy? Second, to what extent did the Russian economy succeed in achieving in quantitative terms the production programme laid down by the planning authorities?

In the first three sections of the book I found no clue at all to my first question. Every twist and turn of Russian economic policy seemed to demonstrate one principle only—the impossibility of running an economy by administrative fiat; no other general principles of planning seemed to emerge. But at the end of each chapter of Section IV Dr. Baykov has given his own conclusions on this very question, and the book ends with a chapter on general planning. It is convenient to mention these conclusions under four separate topics:

¹The Development of the Soviet Economic System, by Alexander Baykov. The National Institute of Economic and Social Research : Economic Social Studies, No. V, (Cambridge University Press, 1946, pp. XV and 514, 30s.)

the principles underlying price policy, the problem of incentives in the control and allocation of labour and in increasing efficiency, the function of the budget and general financial policy, and the general principles of central planning.

The general underlying principle which Dr. Baykov discovers in Russian price policy is that price is equated to "social cost." Unfortunately we are not given any detailed explanation of the meaning of this mystical concept. There is a general discussion (pp. 367 and 368) of the difference between "actual cost price of goods" and their "social cost," but this is most confused and in any case gives no clue as to how the margin between "actual cost price" and "social cost" is determined in the case of individual commodities. The "actual cost price" is raised to "social cost" price by the imposition of a turnover tax, and from the description of the factors which influence the rate of turnover tax on a particular commodity (p. 370), I would suggest the following as an appropriate definition of the "social cost" of a commodity. "The social cost is equal to the price at which the whole and no more than the whole of the quantity of a commodity which it has been decided, on quite arbitrary considerations, shall be produced, will be taken off the market." As a corollary it follows from this definition that the "social" cost or price of a commodity having been fixed, the rate of turnover tax is adjusted to a level and as often as is necessary to neutralise any changes in supply conditions, and that changes in demand conditions are neutralised by increasing social cost! (It is worth noting that the turnover tax in 1935 amounted to 52,026 million roubles out of a total retail turnover of 73,722 million¹.) Is it any wonder that "Soviet economists still insist that the price system suffers from many fundamental defects" (p. 259).

The two new principles which are replacing "purely selfish material motives" are those of "social emulation" and "administrative and judicial penalties." But these two principles have not yet completely won the day for "apparently,

¹No unit is given in Table 35 from which these figures are taken, but I assume they are in millions of roubles. This is a failing common to many of the tables in the book.

the motive of personal interest in the economic activities of man remains fundamental, persisting even after the elimination of private ownership of the means of production and the adoption of the planned economy" (p. 305) and "it does not seem possible wholly to forego personal motives and material interests in order to raise labour productivity to stimulate workers to improve their qualifications . . ." (p. 360). However, Dr. Baykov expects "that under the planned system of national economy as it develops and improves and as the community's standard of living rises, the importance of social incentives will grow and replace purely material incentives" (p. 360). It is not explained how the Russian authorities arrived at the appropriate rates of wages necessary to attract the desired labour supply for each industry, since the analysis "of these purely technical questions of wage planning falls outside the scope of this study" (p. 363).

The basic principles of Soviet finance and budgeting are the "redistribution of the national income" and "the accumulation of the savings of various branches of the national economy." It does indeed seem anachronistic in a planned economy where the initial distribution of incomes is presumably planned in detail that a "redistribution of the national income" on the scale practiced by the Soviet Government should be necessary. In assessing the significance of the second principle of finance it is important that the reader should realise that "savings" have quite a new meaning, for they include the proceeds of the turnover tax, (106 milliard roubles) as well as deductions from profits (21 milliard roubles), other taxes (9 milliard roubles) and State Loans (11 milliard roubles)¹. It looks as if the "accumulation of the savings of the various branches of the national economy" is just an up-to-date euphemism for taxes to raise funds to pay for things that consumers wouldn't care to buy otherwise.

Although Dr. Baykov devotes the whole of his last chapter to "General Planning," he leaves the essential questions almost unconsidered and certainly unanswered. No indication whatsoever is given of the principles on which the Gosplan

¹All these figures are for 1935 : table 65, p. 397.

draws up its investment programme ; of what factors influence its final choice. The only guidance given is in the most general terms such as, "Planning is essentially an act of will, the choice of alternatives in shaping future developments" (p. 434). And as so often in discussions and writing on planning, it is assumed that provided that there is the machinery for planning—apparently Russia is not deficient in this respect—and that the central planners have all the statistics, it is a relatively simple task to draw up a consistent overall detailed plan in which all the pieces of the jig-saw puzzle will fit snugly together. How naively Dr. Baykov views the problem can be seen from the following explanation of the way in which the "balances of electrical power and equipment" are drawn up.

"The Gosplan scrutinised the applications for power and the production plans of every branch of the national economy ; moreover it compared the applications submitted with the quotas of electricity expended per unit of production at the foremost European and American enterprises. As a result the plan fixed new targets and norms for the enterprises."

"Similarly, in drawing up the balances of equipment, the Gosplan not only co-ordinated the applications for equipment received from various P. Commissariats, economic organisations and social and cultural institutions ; it also examined whether these applications corresponded to the approved projects and estimates and the volume of capital work planned by any given commissariat or business organisation, whether the achievements of modern technique were fully taken advantage of and no out-of-date type of equipment asked for, whether the planned utilisation of the equipment was correct and conformed to established technical norms and how far the need for the amounts of every item of equipment was justified, etc. (*sic.*)" (p. 447).

Imagine what salaries such planning wizards could command just now in Whitehall !

Dr. Baykov has discovered three principles of planning which the Gosplan had evolved in the late 1930's. These are the drawing up of "balanced estimates" (in English terminology tables of "Supplies and Requirements"), the use

of "leading links" (in English terminology the principle of programming the "big lumps" and letting the rest drag along as well as may be) and the principle of "supervision of plan fulfilment" (in English terminology "no programme without production figures"). That these techniques are important in any attempt at planning there can be little doubt, but to elevate them as Dr. Baykov appears to do into general principles by means of which the basic problems of planning will finally be resolved is grossly to exaggerate their importance.

In trying to find an answer to the second question: "To what extent did the Russian economy succeed in achieving in quantitative terms the production programme laid down by the planning authorities?", some assessment has to be made of the reliance which should be placed on the numerous statistics which are quoted by Dr. Baykov. All the figures given by Dr. Baykov are drawn from original Russian sources and he assures the reader that he "does not share the view that Soviet statistical and other sources are less realistic than those published in other countries. On the contrary systematic study over a number of years has convinced me that they can be used to analyse the economic processes and the economic system of the U.S.S.R. with the same degree of confidence as similar sources published in other countries" (p. xiv). This may be so but I can only conclude that Dr. Baykov has a poor opinion of statistics published in "other countries." In which "other country" would figures of global "gross industrial production" revalued at prices of an earlier year be used as a measure of real industrial production and of productivity without even a mention of the basis of revaluation or the publication of a single index number of prices (no index number of prices has been published in Russia since 1931)? Nearly all the figures of production both actual and planned given in this book are given in terms of 1926-27 roubles. It is clear from the discussion of the basis of this valuation on page 165 and in other parts of the book that Dr. Baykov has grave doubts about the real value of these figures, but this does not prevent him from drawing conclusions from them about performance of plans and increases in labour productivity. The absurdity of some of

these figures is best illustrated from the figures on real national income given in Table 66. According to this Table the national income of Russia in 1926-27 prices increased from 66.5 milliard roubles in 1935 to 86.0 milliard in 1936—an increase of just less than 30 per cent. in one year! Dr. Baykov himself comments in a footnote to the Table that this is to some extent a 'statistical increase' "since in 1936, in connection with the abolition of rationing, the system of price fixing was altered and this apparently was reflected in the conversion of the national income into 1926-27 prices." There is ample justification for the reader reserving his view on all these figures until the Russian statisticians divulge their secret technique of revaluation. But perhaps other readers will not be so sceptical.

There is one startling omission in this book which cannot escape mention. As Professor Polanyi has shewn in his book "Full Employment and Free Trade,"¹ a very strong case can be made out for the view that the secret of Russian success in achieving full employment was not successful central planning but merely the inflationary financial policy followed by the Russian Government throughout the 1930's, and that many of the acute Russian economic problems of that period—high labour turnover, shortage of consumers' goods, etc., were also the results of inflation. But the word "inflation" hardly appears in Dr. Baykov's book!

This is undoubtedly a book which planners and anti-planners should read with great care. Those western economists whose minds are now exercised by the theoretical problem of the correct price policy which should be followed by an omniscient and omnipotent Government in a planned economy should find reading the story of planning in practice in Russia a particularly salutary experience. Perhaps in their future discussions they would be well advised to take account of the fact that there were 822,000 economists and statisticians in Russia in January, 1937 (Table 67).

¹"Free Employment & Free Trade" : Cambridge University Press, 1945.

E. DEVONS.

The Report of the Working Party on the Cotton Industry

Of all the Working Parties set up last year by the President of the Board of Trade the Cotton Industry Working Party has had the most important and difficult task to perform. It was not, however, called upon to labour in an unknown territory. On the contrary, the cotton industry has been the subject of frequent investigation and public discussion ever since the time when it began to get into difficulties, and in common with the coal industry, it was offered during the twenties and thirties numerous prescriptions for rescuing itself from depression and decay. There was little expectation, therefore, when the Working Party was established, that it would produce many novel proposals which had eluded the ingenuity of the inter-war investigators, but it was hoped that because of the amplitude of past discussion a unanimous report would emerge as the result of its enquiries. Some disappointment has been expressed because this unanimity was not realised.

Since the Report has already been examined critically in the Press and on the platform, it seems that this article can be most usefully devoted, not so much to a detailed discussion of each of the series of recommendations, but rather to a consideration of, first, the general character of the proposals, especially those concerned with the relations between the industry and the Government, and, second, the controversial questions about which the Working Party disagreed. Under both headings, the Report has touched on some fundamental issues in the field of economic policy, issues which are not peculiar to the cotton industry.

As a factual survey, the Report is admirable. While there was little that it could add to our knowledge of the pre-war condition of the industry, it has brought out very clearly the striking changes that the war induced. An industry which before 1939 operated with a large redundancy both of equipment and workers, and with a lowly-paid labour force, faces

the post-war world with a serious deficiency of labour and a much enhanced wage level. Remedies appropriate in the thirties are hardly likely to be useful without profound modification in these vastly altered circumstances, and we are at once warned of the folly of employing today a strategy designed to overcome the troubles of the past. Thus, while a system of statutorily enforceable minimum prices (as suggested by the Cotton Board Committee on Post-War Problems) might have had something to recommend it as a temporary measure to prevent "weak selling" in the circumstances of the thirties, it can have no place in present-day plans. This view is accepted by all the Working Party members (with one exception) for reasons which should convince most readers.

The positive recommendations are given under 34 heads, and all but 6 of these received the assent of the entire Working Party. It is true that the disputed recommendations are of critical importance; but they should not for that reason be allowed to overshadow the Report as a whole, for the 26 agreed recommendations in themselves make up a coherent policy which would take some time to carry through. All the members agreed on the necessity for increased mechanisation and re-equipment, a survey of existing plant for the purpose of determining the industry's needs in this respect, and an "ordered programme" for the supply of textile machinery. They agreed also on the need for experimentation in methods of using labour (as recommended in the Platt Report), on the institution of uniform methods of cost accounting and the preparation of financial accounts, on various means for raising efficiency in marketing, as by drawing producers and distributors closer together and by the establishment of a co-operative marketing company intended to facilitate "bulk and continuous running" and to act "as a pooling agency for the assembly of small orders," on the desirability of extending scientific research and of facilitating application of its results, on methods for raising the quality of management and for securing collaboration between employers, managerial staff and trade unions in increasing output. They considered, like the other Working Parties that have so far reported, that

a central body should be set up composed of independent members, as well as of employers and trade unionists, with functions considerably wider than those of the present Cotton Board. They made also the interesting proposal that, in connection with this central Cotton Council, a company should be established to own mills which would be used as a "yardstick" for testing data of importance to the industry as a whole and as experimental plants where new methods of manufacture and staffing could be tested. These represent a solid body of recommendations.

There is, of course, a wide gap between recommendation and achievement, and the interest of readers is naturally focussed on the proposed methods for bridging it. Most of these methods, it will be observed, depend on "concerted action" by the industry, buttressed at many points by Government assistance or by powers conferred by the State on a central organ. This strengthening of central authority in the industry is one of the most significant general ideas that underlie the Report as a whole. Even those members of the Working Party who dissent from certain of the recommendations apparently agree that "concerted action" by the industry and help from the State in reinforcing it, are needed to bring about the results desired, although they would restrict the field of this "concerted action" more narrowly than their colleagues. Much emphasis is placed on the necessity for this kind of relationship between the industry and the State, and the following quotations from the Report are illuminating : "The unregulated and unassisted activities of the individual units in the industry will not alone be able to accomplish what is required" ; "there will be continuing need to secure inter-action between the power of the Government and the initiative of the individual firms" ; one reason why an effective organisation for the industry as a whole is advocated is that it would provide a means by which "the industry could play its part in the fulfilment of Government policy and public policy could take account of the practical requirements of the industry." In effect this means an acceptance of the proposition that private industry and the Government should be in some sense partners in enterprise,

that the business man must be prepared to frame his decisions in accordance with the principles of policy laid down by Government or its agent, and that Government itself must be ready and competent to accept much wider responsibilities in the industrial field than ever before in peace time. The business man has, of course, always had to accommodate himself to Governmental economic policy; but these proposals imply that the spheres in which the State should now exercise an important influence are to be greatly extended.

War-time experiences have doubtless brought opinion to this point more quickly than would otherwise have occurred. That a measure of agreement has been reached on the necessity for this new kind of relationship so far as the cotton industry is concerned can also be attributed to a wide acceptance of the proposition, based no doubt on the pre-war experience of the industry, that the adjustments in organisation which are required when an industry composed of numerous firms declines steeply, can be achieved more satisfactorily by concerted action than by the ordinary processes of competition. Agreement on the general principle is not, of course, inconsistent with bitter opposition on the part of some members of the Working Party to certain of the specific proposals for this type of action. It is important, however, that the controversy over the scope of the application of the principle should not divert attention from the fact that a considerable measure of agreement was reached on the principle itself, for it is one of great significance.

Before considering the disputed field, we may usefully dwell on some of the questions in connection with which it was agreed that "concerted action" was desirable. They include (i) the "orderly programme" for the supply of textile machinery, which is inevitably closely linked with national investment policy as a whole, and (ii) the encouragement of vertical organisation in part of the industry, as by a closer link-up between producers and distributors. While all members of the Working Party agree in general about the necessity for re-equipment, they are extremely cautious in their recommendations about

the scope, nature and timing of that process. Without a comprehensive survey of existing plant and its suitability for modernisation, the Working Party is not prepared to put forward any detailed recommendations. In view of the present lack of cost records and of the difficulty of making precise comparisons between different methods of working because of the absence of uniform costing systems in Lancashire, it is clear that a great body of facts would have to be collected before (a) the industry or the Cotton Council could give detailed advice on this question and (b) the Government could lend support, either moral or financial, to a programme. Indeed, no one can doubt that when decisions of this kind are removed to a greater or lesser degree from the individual mill-owner and when some part of the responsibility is transferred to the industry acting in concert and to the Government, a vast increase in the quantity of recorded facts is required and that these must be accessible to the authority concerned. The Working Party deplores the inadequacy of the statistical data at present available, and the information that is given about the comparative costs of production according to the type of equipment used is recognised as being inconclusive.

Decisions that involve the investment of tens of millions of pounds at a time when there are many competitors for our scarce capital resources cannot be taken on the basis of mere impressions. Nor is the State justified in stimulating, by the means proposed, a programme of re-equipment of a particular kind unless it is given conclusive evidence of the economies to be yielded by the capital expenditure. That the required information is not at present available should not provoke adverse criticism of the cotton or of any other industry. As long as decisions of this kind are taken by the individual industrialist at his own risk, no obligations can be imposed upon him to provide such information, and there is no reason why he should be forced to adopt uniform systems of costing. But as soon as re-equipment becomes a matter of "concerted policy," and as soon as the State becomes involved in the problem, then elaborate statistical records and cost information

must be forthcoming. Indeed, the provision of such information is an essential condition of "concerted action." Hence the recommendation of the Working Party that firms should be required to adopt uniform costing methods and to make public detailed information about their financial affairs. It should be added that we have a very long way to go before this condition is satisfied.

Even when the information is forthcoming, the correct answers to the intricate problems posed by the industry will not emerge readily from the statistical departments of the Central Council or the Government. For the function of business judgment itself is to some extent transferred when a concerted plan is instituted. "Many unknown possibilities of new technical developments lie ahead," declares the Report, and this suggests that "it would not be wise to have the whole of the Lancashire spinning industry equipped with '1946 model' plant." The trend of demand for the various products of the industry is also a matter of judgment. If a Central Council, working in close relations with Government, is henceforward to influence significantly the policy of the industry, then it must be at least as well-equipped to take wise decisions on these matters for the whole industry as an individual mill-owner at present is for his own business. These points are made, not in order to condemn the concept of a "concerted policy," but rather to suggest that a rise in the competence of Government departments in this field and of central bodies charged with these new responsibilities is a necessary consequence of the adoption of that concept.

This argument has so far been conducted in the context of the re-equipment proposals, but the same considerations are relevant to the proposals for drawing together the producers and merchants. There would seem to be a strong *prima facie* case for this integration, and the Working Party as a whole favours it. It is to be presumed, however, that considerable pressure from above will be required before this form of organisation can be widely extended. According to the Working Party's proposals, the Central Council would apply this pressure under powers conferred on it by the Government. But a

Government ought not to be prepared to apply pressure calculated to bring about fundamental changes in the organisation of an industry unless it has convincing evidence of the advantages of those changes. Is it possible at present to supply objective evidence on such questions sufficient to convince an impartial adjudicator? If not, should the Government wait until the evidence is forthcoming, or should it act merely on presumptive opinion? The delay inherent in the first course may well compel it to choose the second, even though the consequences of a mistake are likely to be much more serious than those made by independent business men.

The seriousness and difficulty of these issues can hardly be exaggerated. We are moving rapidly towards new forms of industrial organisation and new systems of relationships between Government and industry; but it cannot yet be said that the solution of the problems raised by these innovations is in sight. It is, of course, unlikely that any theoretical solution can be provided at this stage. It will doubtless emerge, as have solutions of other difficult political and economic problems in the past, by a process of trial and error. But we cannot be content with the murmur of *solvitur ambulando*. The path to the new order will be long and hazardous if we do not realise the nature of the difficulties ahead and the conditions that must be satisfied before success is assured.

These conclusions have a close bearing on the important recommendations about which the Working Party disagreed. Neither the public nor the Government should find cause for disappointment or dismay in the failure to secure unanimity on these questions. Bodies of this sort are under a strong inducement to present a unanimous report, and for that reason there is always a danger that difficult problems will be side-stepped and fundamental disagreements obscured by vague and tactful verbiage. The issues on which disagreement arose are of great intricacy, and since it is by no means easy to say where the balance should fall, we ought to be grateful that the dispute has been brought to the light of day.

The proposals in question are those for a redundancy scheme, amalgamations and a re-equipment levy. A redundancy

scheme is justified by its advocates on the grounds that the amount of equipment in the industry is far in excess of the labour force likely to be available to work it, irrespective of future movements in demand, that the achievement of productive efficiency requires a transformation in the spinning branch so that it is left with "fewer and better mills," and that without a "scheme" or concerted programme there will be a scramble for labour and output will be spread so that no mill can operate near to full capacity. For the weaving section the recommendations are more tentative, partly because the redundancy in that section may be largely eliminated in any case through the re-spacing and throwing out of looms consequent upon the recent recommendations of the Committee appointed by the Chief Inspector of Factories. In weaving, moreover, the widespread adoption of automatic looms, which affords the greatest opportunities for saving in man-power, gives rise to some highly controversial questions, and whatever view is taken of this project, the capacity of the textile machinery industry for producing automatic looms is so small that the conversion of the weaving industry to automatics would take a very long time. Thus, while plans can be put into effect quickly for the removal of redundancy and for a measure of re-equipment in spinning, the weaving industry can at the moment merely "look forward to an ultimate goal involving change on a scale comparable to that envisaged for the spinning section" and can do little more at the moment than take preliminary steps towards working out a programme.

The means by which redundancy in spinning is to be removed, according to these recommendations, are two-fold. First, there is to be a scheme for taking over, preferably on a voluntary basis, a number of mills of which the plant should be either disposed of to running mills or held in reserve partly at Government expense. Secondly, groupings or amalgamations are to be promoted which would lead to the creation of units large enough to handle plans of re-equipment and consolidation and few enough to facilitate co-operation in a concerted policy. Finally, there is the important suggestion that a fund should be built up from a levy which should be

used to assist firms to carry out approved measures of re-equipment. The levy would be financed by a rise in the price of yarn which might be offset by reductions in the margins allowed to wholesale and retail distributors. The Cotton Council would take the initiative in promoting groupings and amalgamations and in working out the general programme relating to redundancy and re-equipment. In addition, an Equipment Board would be established to collect and disburse the levies, to hold the plant kept in reserve, and to ensure that the re-equipment proposals of individual firms accord with the general programme.

The objections of the dissentients to these proposals turn both on disagreements in principle and also on differences in the interpretation of the data presented to the Working Party. For instance, the objection to a redundancy scheme is based in part on the view that the estimate of the future supply of labour given in the body of the Report is pessimistic, and the fact that considerable doubt exists on this question suggests that before any action is taken, further enquiry into it is needed. Yet, even if the facts are as the protagonists of the scheme assume them to be, this does not dispose of the opponents' objections. So far as these are objections in principle, they seem to the present writer to be difficult to sustain. If the labour force does not expand to the extent necessary to enable the mills to run full (or alternatively, if demand proves to be insufficient to permit this), then experience would suggest that the elimination of surplus capacity by the ordinary processes of competition would be a slow process and that during the long period of adjustment most of the mills would be operating well below capacity and therefore uneconomically. It would seem possible, therefore, even though circumstances are very different from those before the war, to make out a good case in principle for a redundancy scheme.

Whether such a scheme would be of real benefit to the industry, however, depends on answers to two practical questions. First, is it possible to predict with reasonable assurance the amount (and type) of the existing equipment which will certainly not be needed in the future? Second,

can the surplus capacity be retired without placing a greater burden on the survivors than that which they would have to bear if there were no scheme, and if the elimination of the excess were left to attrition? So far as prediction is concerned, the Central Council, since it is to apply pressure on the firms for the removal of the redundancy, would clearly have to make up its mind about the total amount of equipment designated as excessive, even if (as proposed) it leaves to individual mills the task of applying the plan in detail. Whether the Central Council could safely make a global estimate would depend on its having available adequate information about market prospects and the present condition of the industry's equipment, and on whether its own judgment was supported by that of the majority of mill-owners. On the second question, the dissentients make a good point in saying that a moment when the price of textile machinery is high is hardly the one to choose for buying up plant. Nevertheless it does not seem that the answer is necessarily in the negative, as they assume. Their arguments have certainly great force in criticism of the former of the two methods proposed by the Working Party, namely that which involves the buying up and immobilisation of redundant capacity under a central scheme. The second method, namely the removal of redundancy by groups of firms formed for that purpose is far more promising, but unfortunately the proposals under this head are not worked out in detail.

The arguments on both sides in relation to this question of groupings or amalgamations are rather confusing. The advocates of the groupings appear to regard them primarily as a means for removing redundancy and facilitating re-equipment. They produce no evidence to show that the future operation of the industry under large combinations would yield economies, although it is not at all clear that they do not sometimes assume that this is so. The dissentents' attack is directed mainly against this last point, and they succeed in showing that the case for large amalgamations in spinning and weaving is unproved. What seems to emerge from this discussion is that while no obvious economies in production

would result from the development of further large consolidations, in the process of reorganisation (including the elimination of redundancy) groupings of firms—not necessarily very large groupings—might well have a valuable part to play. During the execution of the war-time concentration policy we saw what could be done to promote reorganisation and full running in industries with excessive capacity by the grouping of firms. These groupings did not necessarily leave the operating units larger than before. It may be that this is what the Working Party had in mind, and it seems a useful line to explore further. Before any final judgment could be passed on the proposal, however, it must obviously be worked out in greater detail. The Working Party would presumably not challenge this contention, for it proposes to leave the preparation of particular schemes to the firms themselves. The latter, however, would have to be given a clear indication of what the central authority is aiming at and of the criteria which would be used in judging whether the schemes were satisfactory. Moreover, if the firms themselves failed to move under whatever stimuli were applied to them, it is difficult to believe that in the present state of corporate knowledge any central body could do the job for them.

The re-equipment levy and the Equipment Board are severely handled by the dissentients. These do not dispute the need for increased mechanisation, but they deplore the methods proposed for bringing it about. Their objections are based on the contention that any policy of re-equipment must be highly selective because of the immense diversity of conditions among the various firms, the character of their present equipment, the types of goods they produce, and the variety of solutions of the technical problem that are open to men of good judgment in the industry. According to this view, the re-equipment levy and the operations of the Board would "disturb and delay the selective and discriminating process." In other words, while conditions which would stimulate re-equipment might properly be created (as by increased depreciation allowances or by Government help in the raising

of capital at cheap rates), detailed decisions should be left to the judgment of individual firms. On the whole, the dissentients seemed to have the best of the argument in this case, especially when it is remembered that the cost of the levy would be met by a rise in the price of yarn. The Working Party's argument that this rise need not cause anxiety because it would be only a small one is hardly satisfactory. It is surely dangerous to contend that the increase in the price of some small constituent of a finished product is defensible because it forms a negligible proportion of the price paid by the consumer ; it is often by the accumulation of such small increases that a substantial rise in costs and prices is brought about. Furthermore, the methods of pricing in the wholesale and retail stages mean that small price increases in an early stage of production are greatly magnified by the time the finished goods reach the consumer. On the other hand, to attempt to offset the increases in production costs by reducing distributors' margins (as is suggested) is likely to provoke strong resistance, for unless it can be shown that the present margins on cotton goods are out of line with those allowed for similar products, what is done in the case of one commodity could hardly be denied to others in the same class.

It may be suggested in conclusion, that although these disagreements within the Working Party are serious, they ought not to be exaggerated. To a large extent they are disagreements about the method of bringing about changes that all the members believe to be desirable. Even the divergencies of views about methods are not as wide as appears at first reading and, indeed, as the emphasis given to them in the Report itself suggests. For, as already indicated, the whole of the Working Party seems to be agreed that concerted action by the industry and a closer relationship between Government and industry in policy-making are essential. Disagreement turns mainly on the field that is to be occupied by concerted action and on the responsibilities that are to be left to the individual entrepreneurs. As the trade union members say, in effect, in their Explanatory Memorandum, it is acknowledged by all that the

Government must assume wider responsibilities in the industry but the two sides disagree about the extent of those responsibilities. The drawing of the line, however, should not be determined (as those same members imply that it should) by general political considerations, for the question is one of expediency rather than of principle. In other words, if it is conceded that the cotton industry is to remain under private enterprise, then the definition of private enterprise should be framed not by reference to some general politico-economic philosophy, but rather by regard for the special conditions that govern the various sections of this complex industry at the present time. Thus, one may properly ask : in the pursuit of greater efficiency, what kind of action can be most usefully undertaken by central authority, and what fields of decision are best left to the individual entrepreneur ; but one must ask that question in the context of a particular trade. Even so, the answer must depend on assumptions made about the relative competence in various spheres of decision, of private firms and the central authority established for the trade, and these assumptions will in turn be determined by whether it is judged that the central authority is likely to be able to obtain and to handle information about the whole industry comparable with that which the individual entrepreneur has available when he is taking decisions of the same kind for his own business.

Again, when there is co-operation between Government and industry in working out a policy, it may often happen that the former, or its agents, can lay down a general principle of action and can establish conditions (by inducements or restrictions) to secure the application of that principle, while its translation into detailed practice is left to individual business judgment. Yet even when the functions of the central authority do not extend beyond this point, the responsibilities assumed by it are heavy. For it has to determine the extent of the bias

to be given to business judgment and, in doing so, it must try to compare with some degree of precision the costs and benefits arising from the policy which it is inducing. These comparisons are extremely difficult to make, and the competence of a central authority to make them is still untested and must for long remain open to debate. It is not to be expected, therefore, that any group of men, if they are independent in mind and cautious in judgment, will give identical answers when they are confronted with the intricate questions posed by the intrusion of such an authority into the field of industrial organisation.

G. C. ALLEN

Reviews

Bureaucracy. By LUDWIG VON MISES. (Hodge, 1945. Pp. 148).

Professor von Mises offers us a variety of definitions of bureaucracy in this lively little book. It is "management of affairs which cannot be checked by economic calculation" (p. 61), "management bound to comply with detailed rules and regulations fixed by the authority of a superior body" (p. 58). The second definition follows from the first, and in turn leads to the phenomena which the author regards as necessarily accompanying a wide extension of public activity —waste, inefficiency, and the usurpation by civil servants of powers formally belonging elsewhere.

His argument may be summarised as follows. Efficiency in most fields of human activity depends on an organisation's ability to respond quickly to continual and complex changes. In private business, such changes take the form of varying costs and prices, and are reflected in profits. Failures in responsiveness can be instantly detected. A government department has no such criteria on which to base its responses, and no alternatives are satisfactory. The "detailed rules and regulations" (for example, fixing standards of expenditure to avoid waste and restrain arbitrariness) represent an attempt to find such an alternative. From this attempt follows the rigidity and time-serving associated with governmental activities. But each rigidity leads to further efforts to retain flexibility by finding ways round it. Rule-making is delegated, or a wide discretion sought for the official to settle each case on its merits. Usurpation follows inefficiency though it cannot cure it.

It will be seen that the author is not concerned with particular criticisms of civil service methods, designed to improve them. The evils of bureaucracy are not accidental consequences of errors in administrative organisation or of a shortage of able administrators. He would regard the approach say, of Lord Hewart's "The New Despotism" as superficial. If, for example, Parliament refused to endow its administrators with quasi-legislative functions when the state began to extend

its activities, sheer pressure of business would nevertheless prevent proper Parliamentary consideration of the issues involved. The bureaucratic vices would appear in an intensified form in the legislature.

Nor does Professor von Mises consider that the mere size of an organisation has much bearing on its efficiency. In private business the check of economic calculation exists for large and small firms alike. Modern methods of costing will show whether each sub-department is making a profit or not, though "there is, to be sure, some amount of discretion in determining the distribution of overhead costs" (p. 43). Each section of the business can be treated as buying from and selling to another, and the subordinate managers left free from day-to-day interference. Costs at any stage may be compared with the price at which the product at that stage can be bought from another firm—the author slips in this competitive assumption without observing the damage to the generality of his case. Every miscalculation, not excluding the misjudgment of talent or arbitrary dealings with employees, is reflected promptly in the balance sheet.

Contrast the unfortunate government department, tied to its arbitrary standards, looking for objective tests of quality of work that do not exist, falling back on personal judgment of individual performance (we try above all to please our superiors) or relying on the rigid recruitment examination and promotion by seniority. Useless to bring in the businessman to clear up the muddle. Once he can no longer perform his function of sighting and filling gaps between prices and costs, he has no special advantages denied to the ordinary civil servant.

I think this is a reasonably accurate summary of the author's case. The discussion in his book is conducted throughout on a high plane of generality, and it is by no means an easy task to decide precisely what forms of public activity he is contrasting with private enterprise, or what he considers the correct role of government to be. He seems at times to be denying that, in the absence of money profits, there can be any standards of efficiency at all, which bodes ill for those public activities that can by no manner of means be subjected to the

economic test or handed over to the businessman. But at other times distinctions are drawn. For instance, the Roman Catholic Church is presented as a "perfect bureaucracy" whose methods are "very efficient in the governing of a body clinging to an undisputed, unchangeable set of rules and regulations" (p. 123). One wonders how Professor von Mises knows that they are efficient. The test may be that the dogmas are in fact preserved, as one might say that the only efficient test of a war machine's efficiency is that it wins its wars. But the condition of being able to say this is that the aim achieved is regarded as over-riding. We must assume that the dogma is worth preserving, the war worth winning, at any cost. The cost is then negligible compared with the result, and we can afford to neglect any possibility that the same result might have been achieved more economically, or a rather less satisfactory result achieved in this respect counterbalanced by some other good achieved in another field; say, the maintenance of a higher standard of living in wartime.

This is, however, an exceptional case. Aims are not normally over-riding and, even when they are, it is often difficult to decide at what point in our endeavours they are achieved. There is a sense in which public order is an over-riding aim, as the condition of all other activities. But (as Professor von Mises points out) we still must ask at what point in our expenditure on police stations would the money be better spent on something else? And all such decisions, according to the author, are arbitrary ones, which can only mean we have no reason to suppose that any one answer is better than another.

But no one believes that these broad allocations of resources are in fact purely arbitrary. We have to make complex value judgments about how the State should distribute its efforts, and the criteria we use, though difficult to state precisely, are real enough—and not only that, we have to make such judgments to answer the broadest question of all, what activities the State should engage in. Within the broad limits we make further judgments and further allocations, being finally reduced to direct qualitative judgments of personal efficiency at the

level when we are building and staffing, say, a particular police station and deciding whether a particular bricklayer or police constable knows his job. There is a real sense in which one public organisation is more efficient than another in that it provides a structure in which such judgments can be made more effectively.

The businessman has to solve similar problems, and must be much more than an economic calculating machine. Let us admit that the market sets more precise limits to the inefficiency with which a firm can operate without realising its inefficiency. Let us assume that the businessman can treat changes in his money profits as a measure of changing efficiency (they may be simply the mark of a changing degree of monopoly, or of a different stage in a cycle of innovation or of trade). Let us grant that they are an important "check" which he would do ill to abandon. They are still no more than that. Business losses do not tell a business man anything except that he will go out of business if he goes on making them. He will go out of business if he does—that is perhaps a satisfactory answer to Society which can then assert that his surviving competitors are more efficient than he is. (It is not so very satisfactory even for Society if most business men are inefficient). To the business man the losses are no more precise a guide than lost battles are to a general, or heretical outbreaks to an archbishop. He may, of course, narrow the field if he can isolate, by purely accounting tests, the department in which the loss is being made. Professor von Mises assumes too readily that he always can. He is conscious, as we have seen, of the problem of allocating overhead costs. Mr. Lewis Ord has recently been claiming that one evidence of the superiority of American business methods to British is the lower level of administrative costs they achieve. Whether he is right or not, this is an issue which cannot be resolved by an inspection of balance sheets. Even if such costs could be allocated with precision to different departments, a business could still only ascertain a departmental profit either if the product at that stage formed part of final output (as in the case of a chain of shops, the case Professor von Mises seems to

have mainly in mind), or if a comparable product could be purchased outside the firm. But neither of these conditions applies in a large number of cases. At some quite early stage the business man is reduced to making qualitative judgments ; and in the last resort such judgments come down to a personal assessment of whether so-and-so has a well-defined job and is doing it properly.

This is one point at which the size of the concern (which the author dismisses from consideration) becomes relevant. Battalions of cost accountants cannot prevent the bureaucratic petrifaction of large scale organisations, private or public, if the capacity to make personal estimates of quality is lost, or those who have the capacity are not given the opportunity to act according to their judgment. Hence, over a considerable part of his activities the businessman faces the same problem as the head of a government department. The difference is that the state of the market does give the businessman a rough guide to what is happening¹, and that the firm's resources are at his disposal to organise and risk much as he pleases without having to put down all his reasons on paper and without paying so much attention to pressures from outside. Add to this that he cannot invoke compulsory powers to make his concern too big (though it sometimes grows too big nevertheless and becomes as bureaucratic as a government department) and so has more chance of retaining the ability to make personal estimates of quality, to detect particular failures in vitality or adaptability and put them right without losing the thread of the business as a whole. Professor von Mises distrusts any sort of personal relationship or qualitative judgment within an organisation ; but no group-activity can succeed without them. Internal relations are not necessarily an arbitrary matter depending on the personalities involved. Contacts and initiatives have to some extent to be reducible to rule, though it is true that workers in this field have not yet seen their way to formulating any generally acceptable body of administrative principles.

¹ Professor von Mises does not discuss what happens when the State tries to make use of the price mechanism.

Underlying the author's argument is a fear that liberty as well as efficiency is endangered by the departure from purely monetary calculation. The most ordinary non-economic relations between producer and consumer are binding. "A small shopkeeper, a barber, an innkeeper and an actor are not so free in expressing their political or religious convictions as the owner of a cotton mill or a worker in a steel plant" (p. 51). The political control of business leads straight to Hitler. The extension of detailed regulation causes such delay and waste that the governors finally abandon the rule altogether and are driven to a direct control in which legislative, administrative and judicial powers are combined in the arbitrary word of the controller. The size of the public service rises to the point at which a large number of voters are on the government pay-roll; and the discouraged pioneer turns to the search for security, or enterprise takes the pathological form of youth movements and "intrigues at the courts of those in power" (p. 126). Inevitable? Professor von Mises is not hopeful. "Mankind is manifestly moving towards totalitarianism" (p. 131). Our only weapons are better education in economics and politics, distrust of the expert, "reason," "commonsense." But, as profits and politics have got mixed up, it seems likely that a subtler approach to the problem of their inter-relations is needed than this *cri du coeur* from the New World. To say this is not to deny the timeliness and good sense of much that Professor von Mises says.

R. N. SPANN.

America's Role in the World Economy. By ALVIN H. HANSEN.
(Allen and Unwin, 1945. Pp. 197. 8s. 6d. net.)

Professor Hansen has written an important book for the intelligent general reader on America's role in the world economy. The adoption of appropriate economic policies for international trade and full employment is not merely a matter of producing technical solutions to given economic problems but of creating a wide understanding of the nature of the

problems and of what is involved in their solution. Further, the results of the policies once adopted will be affected by the public's reactions to them which in turn will depend on the public's understanding. It is on these grounds that the importance of Hansen's book rests and it is to be hoped that it will be widely read both in the United States and in this country.

The functions of the International Bank and the International Monetary Fund are described with great lucidity. The International Monetary Fund is discussed at considerable length, due regard being paid to the fundamental problem of the international monetary system, "how to square the theory of exchange adjustment to reasonable stability of exchange rates" (p. 51). The part played by gold in the new international monetary system is explained and it is made quite clear that the new system is not a return to the old gold standard, a point on which there is still much popular misconception. The disadvantages of national deflations and inflations under the old gold standard are emphasised but problems arising from sudden exchange adjustments are hardly mentioned. In Appendix B, A Note on "Fundamental Dis-equilibrium," exchange adjustments are, however, regarded as rather a weak reed as Hansen believes that the price elasticity of exports and imports is not very great and other methods of re-establishing international equilibrium are briefly discussed. This appendix is too advanced for the general reader and quite inadequate for the professional economist considering the complexity of the problem and the present divergence of views.

Hansen continues his account of international economic institutions with a discussion of the functions of UNRRA, the Food and Agriculture Organisation, the International Labour Office, the author's proposed international trade authority and international commodity corporation, and finally the Economic and Social Council of the United Nations. He emphasises the inter-relationship of the various institutions.

Throughout the book Hansen stresses the importance of a high level of international trade and he advocates the

reduction of trade barriers. This, however, is not enough and he insists that the United States must maintain a high degree of internal economic stability at a level of fairly full employment by means of an appropriate fiscal policy. Hansen regards it as tragic that the United States faces the future without confidence in domestic economic stability. In view of the great importance of American economic stability to the part she will play in the world economy a more detailed treatment of this question would have been welcome. The book remains, however, a powerful plea for wholehearted international economic co-operation by the United States, allied with policies for maintaining internal economic stability.

J. C. GILBERT.

The Economics of Peace. By KENNETH E. BOULDING. (Prentice Hall, New York, 1945. 278 pp.)

The belief that the earth is round was fairly widespread at the time of Columbus. But most of Columbus' contemporaries held this belief in a purely speculative sense which evoked no practical response in them. It was left to a few people of a vulgar and literal type of mind—like Columbus—to draw the conclusion that, the earth being round, you could reach the east by sailing to the west.

The Keynesian cure of unemployment amounts to something similar. It decides to take the circulation of money seriously. It pursues the same crude and literal conception of it as do the "money cranks," at least up to the point of demanding, as they do, that when there is not enough money seeking to purchase goods more should be issued until there is enough.

But this conclusion has not yet been unequivocally and generally accepted to-day even by economists who fully accept the Keynesian analysis. The reason for this delay seems to be that many economists are so highly trained in subtle thinking that they find it difficult to recognise a crude fact. People with eyes like microscopes are slow to pick their way among objects of ordinary life.

Professor Boulding is an economist blessed with the gift of normal vision. He tells us that mass unemployment can be cured—and must be cured—by the issue of so much money as will keep circulation at the right level. This money must be issued by the State which should reduce taxation to the requisite extent. If necessary, taxation may even be made negative, *i.e.*, be turned into a net disbursement of money.

This purely fiscal cure of unemployment is deliberately upheld in opposition to any policies which would undertake material measures—such as public works or the re-distribution of income—for the purpose of creating a budget deficit. This “principle of neutrality” (as I have called it elsewhere) is laid down clearly. “The total government expenditure that is not self-financed should be determined mainly by social and political considerations, not by monetary considerations. If the government decides to build dams, roads, houses, schools, and so forth, and to go in for development of public works, these expenditures should be determined on their own merits and not with a view to their effects on money income. Otherwise ‘boondoggling’ is inevitable, with the resultant waste of resources—a waste that is excusable when other and cheaper means are available to produce full employment. Likewise with social security schemes ; these should be considered with regard to the ideals of distributional justice ; they should not be treated as a means of avoiding or recovering from depression.

. . . They must be justified on their own merits ; otherwise the whole system of distributional justice will be thrown into confusion by the constant adjustments necessary to keep money stable.”

This reduces employment policy to a very simple rule ; so simple that the government would be restricted in applying it to closely defined, nearly automatic action. The policy offers little occasion for specific economic measures of the kind desired by the advocates of economic planning and fits in well with a fundamental preference for free trade as held by Professor Boulding. While his “Adjustable Tax Plan” has necessary corollaries in various fields of economic policy and involves in particular extensive adjustments in the field of foreign

payments, it remains pivoted on a single fiscal operation of an extremely straightforward kind.

One might think that such sweeping proposals claiming such high achievements would be propounded with great heat and enthusiasm. No, Professor Boulding goes carefully and tolerantly into a number of rival schemes and comes near to accepting others, such as the Multiple Commodity Reserve Standard which, he believes, may achieve some good purpose for the time being until the correct policy gains acceptance. His tone remains calm and moderate throughout.

I do not know whether wholly to admire this restraint. It is perfectly suited to a balanced argument—but does it express a proper sense of urgency? There is no doubt that Boulding feels the urgency. He knows, and tells us, that "if a free economy cannot avoid deflation and mass unemployment, it is doomed." He fears that this may be the doom of all freedom. Yet what are his reactions? While convinced that a simple fiscal measure could avert the catastrophe—he goes on calmly to say that it will take "at least a generation for the . . . solution of the unemployment problem to penetrate the minds of people in authority." This is not how the atomic scientists of America thought when they realised the tremendous implications of their discoveries to humanity. With their conscience in uproar and their imagination ablaze, they hurled their prophesies at the public. And within six months they turned America away from the path on which it had marched since its beginnings and impelled her to take the lead in the establishment of International World Control. They did not say that it will take at least a generation for the truth to penetrate to their fellow men. They assumed rather that what they themselves can understand, the next man will also understand if he is told about it sincerely, and emphatically.

There is something lacking in the relationship of economists to the public if even such a bold and public-spirited economist as Professor Boulding so easily resigns himself to impotence—in the face of such peril, with such swift and simple remedies at hand. No one can admire more than I do the advances in economic thought achieved by the last generation of economists

and crowned by the Keynesian discovery. I quite agree with Professor Boulding that history may one day celebrate this silent revolution as a major event of our age. But I think that history will also ponder the fact that this revolution was necessary in order to make economists accept the usefulness of certain simple and yet decisive measures which had been advocated for a long time past by a number of zealous laymen with considerable response among the common people. And if history will record also that during the present perilous period we had been much weakened and confused by the dread of a future depression—and should it have to record further, that that depression actually broke in on us at the very moment when civic unity and confidence in our own way of life was of utmost necessity to us—then history will judge that there was something amiss in the approach of our economists to the facts and exigencies of our time. History will regret then that economists had not discovered a better balance between the requirements of scholarly precision and detachment on the one hand, and the claims of common sense and common sentiment on the other.

I do not pretend to know where that better balance lies. But I am sure that it cannot be found unless urgently desired. *The Economics of Peace* is prompted by such desire and goes some way towards its fulfilment—but I wish it went still further.

It should be clear that this is not to minimise the importance of detailed considerations of theory and policy. I note Professor Boulding's plan to keep the rate of interest at a desired level. He suggests that deficits should be financed by a mixture of (a) government bonds—to be subscribed by the banks—and (b) of greenbacks, i.e., non-interest bearing paper. Borrowing from the public is to be excluded on account of its deflationary effects. The process (a) is to be used for raising, the process (b) for lowering the rate of interest. Particular attention is to be paid to the liquidity of the banks which are holding large stocks of interest-bearing government bonds. These bonds should be protected from devaluation as a result of an excessive rise in the rate of interest. In order to assure a quick response of employment control, taxes are to be made

payable and adjustable at frequent intervals, quarterly or bi-monthly adjustments should be tried; these adjustments being dependent on the observed variations of money incomes during the past period.

The argument of the book is kept on a popular level, which prevents the accurate presentation of some of its subjects. Chapter 7 explaining the Keynesian theory is excellent but it does not show how (*ex ante*) savings become equal to investment through the rise or fall of the national income. Perhaps the author is carried away by the simplifications introduced at this stage in his discussion of the ratio between changes in tax rates and the consequent changes in national income. "It is probable (he writes) that a change in tax causes a smaller change in expenditure and income: thus if I discover that instead of paying \$100 in tax I only have to pay \$90, I may increase my expenditures by \$5 but am unlikely to increase them by the full \$10 reduction in the tax. If income declines by, say \$1,000,000, there must, therefore, be a greater reduction of tax, say of \$2,000,000—in order to offset the decline in income" (p. 162). This statement ignores the multiplier effect which would cause the national income to rise above the increase of expenditure by the taxpayer.

Confusion is made worse when we read two pages further on "Consider for instance what happened between 1929 and 1933—a reduction of the national income from 90 billion to about 45 billion dollars. If the "multiplier" was only equal to 1, it would have required a budget deficit of 45 billion in 1933 to bring the national income back to the 1933 level. In fact, a deficit of some 20-30 billion would have been enough . . ." It seems obvious that if the multiplier were 1, i.e., marginal savings were 100%, tax remission would have no effect whatever on the national income. (Fortunately such an assumption could not apply.) The correct way of assessing the relation between Δi the increase in income and Δt the reduction of tax is clearly as follows. Call r the marginal rate of saving of taxpayers; then the net addition to "squirting" is $\Delta t (1-r)$. Call m the multiplier; then $\Delta i = m \Delta t (1-r)$. If $m = 1/r$ —which is true in the absence of changes in the balance of foreign

payments and in the assumption of coincidence between the taxpayer's marginal rate of savings and the weighted average marginal rate of saving—then $\Delta i = \Delta t$ ($m-l$). Professor Boulding's treatment appears therefore to be open here to very serious objections.

A very interesting part of the book deals with the problem of remedying the general poverty of countries like India, China and Russia. Three-quarters of the whole population of the world live at the edge of destitution and no full employment policies will relieve their misery. I enjoyed Boulding's generous approach to this problem coupled with a recognition of its tremendous difficulties which are so lightly overlooked by people who persist in repeating the silly saying that "science has solved the problem of production." It is rarely realised—as Boulding points out—that a Hindu or Chinese peasant might well be amazed at our concern over the problem of unemployment, so far was the standard of life of the industrial nations, even at the depth of depression above that to which these peasants are condemned at all times.

We have still a great deal to learn in the field of international economic solidarity on which Boulding urges us seriously to enter. UNRRA, which was started after his book went to print, may prove the beginning of a new international custom by which rich countries will try, at least to some extent, to live up to their Christian obligation of sharing their wealth with less prosperous peoples abroad. "Abolition of poverty," says Boulding rightly, "will require a considerable restriction of consumption on the part not only of the well-to-do but of the middle-classes." It is highly desirable, he says, to educate people everywhere to favour simpler standards of life. Our lives would probably make better sense if we did.

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